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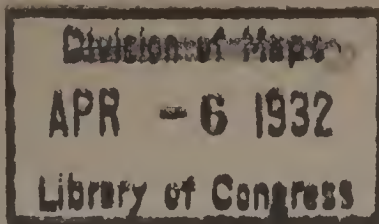
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Parliamentary Rules and Usages.

The following are the complete rules, in a plain and compact form, for conducting a public meeting.

Quorum.— A quorum is a sufficient number of the members of an association to legally transact business. Unless a quorum is present no business is in order, except to adjourn. A majority of the members constitutes a natural quorum, but the by-laws of the association may prescribe a smaller number.

The Chairman.— It is the duty of the chairman to open the meeting at the time fixed upon, by taking the chair, calling the house to order, to announce the business before the house in the order in which it is to be acted upon; to receive and submit all motions; to put to vote all questions which are regularly moved, or which necessarily arise in the course of proceedings, and to announce the result; to restrain every one, when engaged in debate, within the rules of order; to enforce the observance of order and decorum; to appoint committees; to authenticate by his signature, when necessary, all the acts and proceedings of the house, and generally to declare its will.

He may speak to points of order in preference to others; shall decide all questions of order, and if the house is evenly divided he may give the casting vote, in doing which he may, if he pleases, give his reasons.

The Clerk.— It is the duty of the clerk or secretary to keep correct minutes of the proceedings of the house; to read all papers when ordered, and for this purpose he should always rise; to call the roll, and state the answer when a vote is taken by yeas and nays; to have the custody of all papers and documents, and to authenticate the acts and proceedings of the house by his signature.

Committees.— Standing committees sit permanently; special committees perform only some particular duty, when they are discharged. The person first-named is usually regarded as chairman, but this is only a matter of courtesy; every committee has a right to select its own chairman. Custom, however, has practically taken away this right, and it is considered bad form to elect any other person than the first-named as chairman. The mover of a motion to commit, should be placed on the committee and first-named, except where the matter committed concerns him personally. In the appointment of the committee no person directly opposed to the measure committed should be named, and when any person who is thus opposed to same, hears himself named of its committee he should ask to be excused.

The chair appoints all committees. Committees do not adjourn, but, when they have concluded their deliberations, should rise and report. The report should be presented by the chairman. When the report is received the committee is dissolved and cannot act further without new power.

Any committee required or entitled to report upon a subject referred to them may make a majority and minority report, while

any member or such committee dissenting in whole or in part, from either the conclusion or the reasoning of both the majority and minority, may also present a statement of his reasons for such dissent, which should be received in connection with the reports.

The committee of the whole is an expedient to simplify the business of legislative bodies. No record is made of its proceedings. The presiding officer puts the question, and, if same is carried, appoints some person as chairman and then vacates the chair.

Motions.—Propositions made to a deliberative assembly are called *motions*; when the proposition is put to vote it is called the *question*. A motion cannot be entertained or the question put, until the same has been seconded. After this it becomes the property of the house, and cannot be withdrawn except by leave. It must be in writing whenever the house or presiding officer require it, and must be read when any person demands it for information.

An exception to the rule requiring a second to a motion is made in cases when the proposition is to proceed with or to execute an order of the house; as where it is moved to proceed with an order of the day, or where a call is made for the enforcement of some order relating to the observance of decorum.

No motion can be made while a speaker has the floor, nor while another motion is pending, except it be a question of privilege.

Amendments.—A motion may be amended by inserting or adding words, or by striking out words, or by striking out and inserting words. An amendment takes precedence of the original question and must be first decided. So, too, an amendment to an amendment must be decided before the amendment. A motion may be made to amend, after which a motion will be to amend the amendment, but this is the full limit of the rule by which one motion may be put upon another. A motion to amend the second amendment is not in order.

Questions of privilege cannot be amended, except that a motion to postpone can be amended as to time.

The Question.—The question is first to be put on the affirmative and then on the negative side, the vote in most cases being by oral response. If there are doubts as to the voice of the majority, any one may call for a division. In all cases where the house is equally divided the question is lost, unless the presiding officer affirms it by a casting vote.

When a division is had, those in the affirmative on the question should first rise and be counted, or, if there still be a doubt, or a *count* be called for, the chairman should appoint two tellers, one from each side, to make the count and report the same to the chairman, who should then declare the same to the house.

In small matters of routine business or trifling importance, such as receiving reports, withdrawing motions, etc., the presiding officer may suppose the consent of the house where no objection is expressed, and need not give them the trouble of putting the question formally.

A question should always be stated by the chair before it is put, after which it is open to debate. Questions may be stated by the chair while sitting, but he should always rise to put a question,

and should use substantially this form: "As many as are of the opinion that (as the question may be) will say aye;" and, after the affirmative voice is expressed, "As many as are of a contrary opinion, will say no."

After a question has been put it is not debatable, but after the affirmative is put any person who has not spoken before to the question may rise and speak before the negative is put.

Division of Question.—Any person may call for the division of a question if it comprehend propositions, in substance so distinct, that, one being taken away, a substantive proposition shall remain for decision.

When a question is divided, after the question on the first part, the second is open to debate and amendment.

Privileged Questions.—When a question is under debate, no motion shall be received, except to adjourn; to lay on the table; for the previous question; to postpone to a day certain; to commit; to amend; to postpone indefinitely. These motions have precedence in the order in which they stand arranged, and are called privileged questions.

A motion to adjourn is always in order and takes precedence of all other motions, and an order of the day takes the place of all questions except adjournment.

When a matter has been laid on the table it may be taken up at any time afterward and considered, but not at the same meeting or session at which it was tabled. Frequently this motion is made to finally dispose of the matter, and it always has this effect when no motion is afterward made to take it up. The proper motion for proceeding with a matter that has been ordered to lie on the table, is, that the house do now proceed to consider that matter, although it would be proper to move that the matter be taken up for consideration.

There are several questions which, being incidental to every one, will take the place of every one, privileged or not; as, a question of order arising out of any other question must be decided before that question.

A motion for indefinite postponement is generally resorted to in order to suppress a question or prevent its coming to vote.

Previous Question.—When any question is before the house any member may move that the question (called the main question) be now put, or, as it is usually termed, may move the previous question. If it pass in the affirmative, then the main question is to be put immediately, and no further debate is permitted.

The previous question being moved and seconded, the question from the chair should be, "Shall the main question be now put?" If the nays prevail the main question remains as the question before the house, in the same stage of proceedings as before the previous question was moved.

Equivalent Questions.—Where questions are perfectly equivalent, so that the negative of the one amounts to the affirmative of the other, and leaves no other alternative, the decision of the one necessarily concludes the other. Thus the negative of striking out

amounts to the affirmative of agreeing; and, therefore, to put a question on agreeing after that of striking out, would be to put the same question in effect twice over.

Questions of Order.—It is the duty of the chairman to decide all questions of order whenever raised. Upon such questions no debate or discussion is in order, but if the decision is not satisfactory any one may object to it and appeal to the house. On appeal being taken, the question should be: "Shall the decision of the chair stand as the judgment of the house?" Whereupon the question may be debated and discussed the same as any other question.

Commitment.—Any measure may be referred to a committee, on motion. This motion stands in the same degree with the previous question and postponement, and, if first made, takes precedence of them. A motion to commit may be amended by the substitution of one kind of committee for another, or by enlarging or diminishing the number of the members of the committee, as originally proposed, or by instructions to the committee.

After a measure has been committed and reported, it should not, in an ordinary course, be recommitted, but in cases of importance, and for special reasons, it is sometimes recommitted, and usually to the same committee.

Reconsideration.—When a motion or question shall have been determined, either in the affirmative or negative, it is always in order for any one who voted with the majority, or in case the vote was equally divided, for one who voted in the negative, to move for a reconsideration thereof. Such motion must be made at the same meeting at which the former vote was taken. A motion to reconsider, being put, lost, cannot be renewed.

Undebatable Motions.—A motion to adjourn; to lay on the table, and a call for the previous question, must be decided without debate. And all incidental questions of order, arising after a motion is made for either of the foregoing questions, must be decided, whether on appeal or otherwise, without debate.

Order in Debate.—When a person means to speak, he is to stand up in his place, uncovered, and address himself to the chair, who calls him by name, that all may take notice who it is that speaks. A person who is indisposed may be indulged to speak sitting.

When a person rises to speak, no question is to be put, but he is to be heard undisturbed, unless overruled.

If two or more rise to speak nearly together, the chair determines who was first up and calls him by name, whereupon he proceeds, unless he voluntarily sits down and yields the floor to the other.

No one may speak more than twice to the same question without the consent of the house, except merely to explain himself in some material part of his speech, or to the manner of the words in question, keeping himself to that only and not going into the merits of it.

If the chairman rises to speak, the person standing must sit down, that the chair may be first heard.

No one is to speak impertinently, or beside the question, or to use indecent language against the proceedings of the house. Nor should a person in speaking, mention another then present, by his name, but should describe by his seat, or as "the gentleman who spoke last," or, "on the other side of the question," etc.

Any one when called to order by another or by the chair, must sit down, and not proceed without leave until the question of order shall have been decided by the chair.

While the presiding officer is addressing the house or putting a question, no one should cross the floor or leave the room; nor while another is speaking, walk between him and the chair.

Adjournment.—A motion to adjourn is not susceptible of amendment. If it is desirable to adjourn to any particular place or time, this may be accomplished by a previous resolution to that effect.

ENORMOUS INCREASE IN THE PRODUCTION OF PIG IRON.

The production of pig iron during the year ending June 30, 1890, aggregated 9,579,779 tons (of 2,000 pounds to the ton), as compared with 3,781,021 tons produced during the census year of 1880 and 2,052,821 tons during the census year of 1870.

It will be gratifying to notice the great strides which the Southern States have made in the manufacture of pig iron since 1880, the total product in that year being 350,436 tons, as against 1,780,909 tons in 1890. The decade has brought about the most marked change in rank in this industry in the State of Alabama, which in 1880 occupied tenth place, with an output of 62,336 tons, and which now, in 1890, obtains third place, with an output of 890,432 tons, an increase of more than 1,328 per cent over the production of 1880.

The development of the manufacture of pig iron in the United States during the ten years from 1880 to 1890 has been phenomenal, and at the present rate of increase in production, this country is destined soon to become the leading producer of pig iron in the world, possibly reaching this distinction in the calendar year 1890. During the calendar year 1889 the production of pig iron by Great Britain, which has annually produced more pig iron than any other country, is shown by official statistics to have been 9,321,563 tons of 2,000 pounds. It will be seen from these figures that the quantity of pig iron produced by the United States, during the census year 1890, was 258,216 tons in excess of the production of Great Britain during the calendar year 1889. No statistics are available for the output of pig iron by Great Britain during the twelve months ended June 30, 1890, so that comparisons can not be made for the same period as that covered by the census statistics.

MINERAL PRODUCTS OF THE UNITED STATES.

The 1890 census furnishes the following data concerning this important branch of public wealth. It divides mineral products into two classes.

Metallic Products (11 different metals). Value extracted in 1889: \$269,590,487: iron counting the highest (\$120,000,000), and platinum the lowest (\$2,000). with 66 million worth of silver and 32 million worth of gold.

Non-Metallic Mineral Products (44 different substances). Value extracted in 1889: \$307,640,175, headed by coal (bituminous for 94 millions; anthracite, 66 millions; total, \$160,000,000), followed by lime, 33 millions; petroleum, 27 millions, and natural gas, 21 millions. Then come cement, 5 millions; salt, 4 millions, etc., down to lithographic stones, value \$243.

For the preceding ten years (1880-89 inclusive) we find the following totals:

| | |
|----------------------------|-----------------|
| Metallic Products..... | \$2,165,000,310 |
| Non-Metallic Minerals..... | 2,461,843,320 |
| Unspecified Minerals..... | 60,500,000 |

Grand Total.....\$4,687,343,630

for ten years' production.

The Total Colored Population, as returned under the census of 1890, is 7,638,360. Of this number 7,470,040 are persons of African descent, 107,475 are Chinese, 2,039 are Japanese, and 58,806 are civilized Indians.

Considering persons of African descent, it is seen that there has been an increase, during the decade from 1880 to 1890, of 889,247, or 13.51 per cent, as against an increase, during the decade from 1870 to 1880, of 1,700,784, or 34.85 per cent. The abnormal increase of the colored population of the South, during the decade ending in 1880, led to the popular belief that the negroes were increasing at a much greater rate than the white population. The last census has shown, however, that the high rate of increase in the colored population, as shown by the census of 1880, was apparent only, and was due to the imperfect enumeration of 1870 in the southern states.

There has been an increase in the number of Chinese in the United States, during the decade from 1880 to 1890, of only 2,010, or 1.91 per cent, the number returned in 1880 being 105,465, and the number returned in 1890 being 107,475. The Chinese increased 66.88 per cent from 1870 to 1880, and 80.91 per cent from 1860 to 1870.

In 1880 the Japanese in the United States numbered only 148, while in 1890 they numbered 2,039. In 1870 there were only 55 Japanese returned under that census.

The civilized Indians have decreased during the past ten years 7,601, or 11.45 per cent, the number returned in 1880 being 66,407 as against 58,806 returned in 1890.

CENTENARIANS IN THE UNITED STATES.

Bulletin No. 154 of the Census of 1890, treats exclusively of the poorhouses throughout the United States. It finds therein 73,045 paupers, 40,741 of these being males, and 32,304 females.

Then the ages are given in detail, ranging from less than 1 year to the respectable age of 128. Here is a table of all the paupers 100 years old and over:

| AGE. | MALE. | FEMALE. | TOTAL. | AGE. | MALE. | FEMALE. | TOTAL. |
|------------|-------|---------|--------|---------|-------|---------|--------|
| 100 to 104 | 40 | 51 | 91 | 123 | 1 | 1 | 2 |
| 105 to 109 | 16 | 18 | 34 | 125 | 0 | 1 | 1 |
| 110 to 114 | 6 | 9 | 15 | 128 | 0 | 1 | 1 |
| 115 to 119 | 5 | 6 | 11 | | | | |
| 122 | 0 | 1 | 1 | Totals, | 68 | 88 | 156 |

Of the *five* oldest paupers *four* are women, and belong [or rather *belonged*, for they are probably dead since 1890] to the following states: Missouri (122), South Carolina (123), Tennessee (125) and Alabama (128). The man (age, 123) was in a Georgian institution. All five were colored.

Between 90 and 94 years old, we find 345 men and 271 women. Between 95 and 99 years old, we find 80 men and 75 women. Out of a total of 73,045 inmates, the proportion is enormous.

THE AMERICAN INDIAN.

| | |
|--|---------|
| Indians on Reservations or at School..... | 133,382 |
| The Five civilized Indian tribes (Cherokees, Chickasaws, Choctaws, Creeks, Seminoles)..... | 52,065 |
| Colored Indians and claimants..... | 14,224 |
| Pueblos, of New Mexico..... | 8,278 |
| Six Nations and other New York Indians..... | 5,304 |
| Eastern Cherokees of North Carolina..... | 2,885 |
| Indians, taxed or taxable, included in general census..... | 32,567 |
| Indians controlled by War Department..... | 384 |
| Indians in State or Territorial Prisons | 184 |

Total number of American Indians.....249,273

PROFESSIONAL SCHOOLS IN THE UNITED STATES.

| | | | | |
|------------------------|------|----------|-----------------------|-----------|
| Theological..... | 141, | with 686 | instructors and 6,989 | students. |
| Law..... | 52, | " 345 | " | 3,906 " |
| Medical, Regular..... | 92, | " 1,907 | " | 12,238 " |
| Medical, Eclectic..... | 9, | " 116 | " | 609 " |
| Medical, Homœopathic | 14, | " 249 | " | 1,159 " |

POPULAR AND ELECTORAL VOTES FOR PRESIDENTS.

| Year. | CANDIDATES. | PARTY. | Popular Vote. | Elec't Vote. |
|----------|---------------------------|---------------------|------------------|-----------------|
| 1824.... | Andrew Jackson..... | Democrat.... | 152,872 | 99 |
| 1824.... | John Q. Adams..... | Federal..... | 105,321 | 84 |
| 1824.... | W. H. Crawford..... | Republican..... | 44,282 | 41 |
| 1824.... | Henry Clay..... | Republican..... | 46,587 | 37 |
| 1828.... | Andrew Jackson..... | Democrat..... | 647,231 | 178 |
| 1828.... | John Q. Adams..... | Federal..... | 509,097 | 83 |
| 1832.... | Andrew Jackson..... | Democrat..... | 687,502 | 219 |
| 1832.... | Henry Clay..... | Nat. Republican... | 530,189 | 49 |
| 1832.... | John Floyd..... | Whig..... | | 11 |
| 1832.... | William Wirt..... | Whig..... | | 7 |
| 1836.... | Martin Van Buren..... | Democrat..... | 761,549 | 170 |
| 1836.... | W. H. Harrison..... | Whig..... | | 73 |
| 1836.... | Hugh L. White..... | Whig..... | | 26 |
| 1836.... | Daniel Webster..... | Whig..... | 736,656 | 14 |
| 1836.... | W. P. Mangum..... | Whig..... | | 11 |
| 1840.... | Martin Van Buren..... | Democrat..... | 1,128,702 | 48 |
| 1840.... | W. H. Harrison..... | Whig..... | 1,275,017 | 234 |
| 1840.... | J. G. Birney..... | Liberty..... | 7,059 | ... |
| 1844.... | James K. Polk..... | Democrat..... | 1,337,243 | 170 |
| 1844.... | Henry Clay..... | Whig..... | 1,283,068 | 105 |
| 1844.... | James G. Birney..... | Liberty..... | 63,300 | ... |
| 1848.... | Zachary Taylor..... | Whig..... | 1,360,101 | 163 |
| 1848.... | Lewis Cass..... | Democrat..... | 1,220,544 | 127 |
| 1848.... | Martin Van Buren..... | Free Soil..... | 291,263 | ... |
| 1852.... | Franklin Pierce..... | Democrat..... | 1,601,474 | 254 |
| 1852.... | Winfield Scott..... | Whig..... | 1,386,578 | 42 |
| 1852.... | John P. Hale..... | Free Soil..... | 156,149 | ... |
| 1856.... | James Buchanan..... | Democrat..... | 1,838,169 | 174 |
| 1856.... | John C. Fremont..... | Republican..... | 1,341,262 | 114 |
| 1856.... | Millard Fillmore..... | American..... | 874,534 | 8 |
| 1860.... | Abraham Lincoln..... | Republican..... | 1,866,352 | 180 |
| 1860.... | Stephen A. Douglas..... | Democrat..... | 1,375,157 | 12 |
| 1860.... | John C. Breckenridge..... | Democrat..... | 845,763 | 72 |
| 1860.... | John Bell..... | Union..... | 589,581 | 39 |
| 1864.... | Abraham Lincoln..... | Republican..... | 2,216,067 | 212 |
| 1864.... | Geo. B. McClellan..... | Democrat..... | 1,808,725 | 21 |
| 1868.... | U. S. Grant..... | Republican..... | 3,015,071 | 214 |
| 1868.... | Horatio Seymour..... | Democrat..... | 2,709,613 | 80 |
| 1872.... | U. S. Grant..... | Republican..... | 3,597,070 | 286 |
| 1872.... | Horace Greeley..... | Liberal and Dem.... | 2,834,079 | ... |
| 1872.... | Charles O'Connor..... | Democrat..... | 29,408 | ... |
| 1872.... | James Black..... | Temperance..... | 5,608 | ... |
| 1876.... | R. B. Hayes..... | Republican..... | 4,033,950 | 185 |
| 1876.... | Samuel J. Tilden..... | Democrat..... | 4,284,885 | 184 |
| 1876.... | Peter Cooper..... | Greenback..... | 81,740 | ... |
| 1876.... | G. C. Smith..... | Prohibition..... | 9,522 | ... |
| 1876.... | Scattering..... | | 2,636 | ... |
| 1880.... | James A. Garfield..... | Republican..... | 4,449,053 | 214 |
| 1880.... | Winfield S. Hancock..... | Democrat..... | 4,442,035 | 155 |
| 1880.... | James B. Weaver..... | Greenback..... | 307,306 | ... |
| 1884.... | Grover Cleveland..... | Democrat..... | 4,911,017 | 219 |
| 1884.... | James G. Blaine..... | Republican..... | 4,848,334 | 182 |
| 1884.... | Benj. F. Butler..... | Greenback..... | 133,825 | ... |
| 1884.... | John P. St. John..... | Prohibition..... | 151,800 | ... |
| 1888.... | Benjamin Harrison..... | Republican..... | 5,441,902 | 203 |
| 1888.... | Grover Cleveland..... | Democrat..... | 5,538,560 | 162 |
| 1888.... | Fisk..... | Prohibition..... | 249,937 | ... |
| 1888.... | Labor Vote..... | | 147,521 | ... |

POPULATION OF EVERY STATE AND TERRITORY, Etc.

UNITED STATES CENSUS OF 1890.

| STATES. | Popula- tion. | Square Miles. | Electo- ral Vote. |
|--|-------------------|------------------|----------------------|
| Alabama..... | 1,513,017 | 52,250 | 10 |
| Arkansas..... | 1,128,179 | 53,850 | 7 |
| California..... | 1,208,130 | 158,360 | 8 |
| Colorado..... | 412,198 | 103,925 | 7 |
| Connecticut..... | 746,258 | 4,990 | 6 |
| Delaware..... | 168,493 | 2,050 | 3 |
| Florida..... | 391,422 | 58,680 | 4 |
| Georgia..... | 1,837,353 | 59,475 | 12 |
| Idaho..... | 84,385 | 84,800 | 3 |
| Illinois..... | 3,826,351 | 56,650 | 22 |
| Indiana..... | 2,192,404 | 36,350 | 15 |
| Iowa..... | 1,911,896 | 56,025 | 13 |
| Kansas..... | 1,427,096 | 82,080 | 9 |
| Kentucky..... | 1,858,635 | 40,400 | 13 |
| Louisiana..... | 1,118,587 | 48,720 | 8 |
| Maine..... | 661,086 | 33,040 | 6 |
| Maryland..... | 1,042,390 | 12,210 | 8 |
| Massachusetts..... | 2,238,943 | 8,315 | 14 |
| Michigan..... | 2,093,889 | 58,915 | 13 |
| Minnesota..... | 1,301,826 | 83,365 | 7 |
| Mississippi..... | 1,289,600 | 46,810 | 9 |
| Missouri..... | 2,679,181 | 69,415 | 16 |
| Montana..... | 132,159 | 146,080 | 3 |
| Nebraska..... | 1,058,910 | 77,510 | 5 |
| Nevada..... | 45,761 | 110,700 | 3 |
| New Hampshire..... | 376,530 | 9,305 | 4 |
| New Jersey..... | 1,444,933 | 7,815 | 9 |
| New York..... | 5,997,853 | 49,170 | 36 |
| North Carolina..... | 1,617,947 | 52,250 | 11 |
| North Dakota..... | 182,719 | 68,645 | 3 |
| Ohio..... | 3,672,316 | 41,060 | 23 |
| Oregon..... | 313,767 | 96,030 | 3 |
| Pennsylvania..... | 5,258,014 | 45,215 | 30 |
| Rhode Island..... | 345,506 | 1,250 | 4 |
| South Carolina..... | 1,151,149 | 30,570 | 9 |
| South Dakota..... | 328,808 | 79,800 | 4 |
| Tennessee..... | 1,766,518 | 42,050 | 12 |
| Texas..... | 2,235,523 | 265,780 | 13 |
| Vermont..... | 332,422 | 9,565 | 4 |
| Virginia..... | 1,655,980 | 42,450 | 12 |
| Washington..... | 349,390 | 69,180 | 3 |
| West Virginia..... | 762,794 | 24,780 | 6 |
| Wisconsin..... | 1,686,880 | 56,040 | 11 |
| Wyoming..... | 60,705 | 97,890 | 3 |
| Delaware, Raritan and New York Bays..... | | 720 | .. |
| TOTAL, STATES, | 61,908,906 | 2,634,530 | 420 |
| TERRITORIES. | | | |
| Arizona..... | 59,620 | 113,020 | |
| District of Columbia..... | 230,392 | 70 | |
| New Mexico..... | 153,593 | 122,580 | |
| Oklahoma..... | 61,834 | 39,450 | |
| Utah..... | 207,905 | 84,970 | |
| TOTAL, TERRITORIES, | 713,344 | 360,090 | |
| Excluding Alaska, Indian Territory and Indians.....Grand Total, | 62,622,250 | | |

How to Tell the Speed of a Train.

Here is a way to tell how fast you are traveling in a railway car. Every time a car passes over a rail-joint there is a distinct click. Count the number of these clicks in twenty seconds and you have the number of miles the train is going per hour. This is a simple matter of arithmetic, as the length of the rail is uniform.

Seasoning and Preserving Timber.

For the purpose of seasoning, timber should be piled under shelter, where it may be kept dry, but not exposed to a strong current of air. At the same time there should be a free circulation of air about the timber, with which view slats or blocks of wood should be placed between the pieces that lie over each other, near enough to prevent the timber from bending.

In the sheds, the pieces of timber should be piled in this way, or in square piles, and classed according to age and kind. Each pile should be distinctly marked with the number and kind of pieces, and the age, or the date of receiving them.

The piles should be taken down and made over again at intervals, varying with the length of time the timber has been cut.

The seasoning of timber requires from two to four years, according to its size.

Gradual drying and seasoning in this manner is considered the most favorable to the durability and strength of timber, but various methods have been prepared for hastening the process. For this purpose, *steaming* and *boiling* timber has been applied with success; *kiln-drying* is serviceable only for boards and pieces of small dimensions, and is apt to cause cracks, and to impair the strength of wood, unless performed very slowly.

Timber of large dimension is improved by *immersion in water* for some weeks, according to its size, after which, it is less subject to warp and crack in steaming.

Oak timber loses about *one-fifth of its weight* in seasoning, and about *one-third of its weight* in becoming dry.

Growth of the United States.

This country began the present century with 5,308,483 people. In the year 1810 the population was 7,239,881, an increase of 36.28 per cent; in 1820 it was 9,632,022, an increase of 33.66 per cent; in 1830 it was 12,866,020, an increase of 32.51 per cent; in 1840 it was 17,069,453, an increase of 32.52 per cent; in 1850 it was 23,191,876, an increase of 35.83 per cent; in 1860 it was 31,443,321, an increase of 35.11 per cent; in 1870 it was 38,558,371, an increase of 22.65 per cent; in 1880 it was 50,155,783, an increase of 30.08 per cent; in 1890 it is 62,622,250, an increase of about 28 per cent. This great growth is shown by a few comparisons. The British Islands began the present century with three times as many people as the United States, and yet its present population is only three-fifths of our own. Of all the civilized countries, Russia has the most people, 113,354,649; but at our rate of increase it will not be many years before this country passes Russia. Another interesting fact is that the English language is spreading twice as rapidly as any other tongue, so that the future promises to the United States not only leadership in population, but in the language of the world.

SIX PER CENT. INTEREST TABLE.

| DAYS | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |
|---------|---|---|---|---|---|---|---|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| MONTHS. | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 | 29 | 30 | 31 |

SEVEN PER CENT. INTEREST TABLE.

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| DAYS. | \$1 | \$2 | \$3 | \$4 | \$5 | \$10 | \$20 | \$30 | \$40 | \$50 | \$60 | \$70 | \$80 | \$90 | \$100 | \$200 | \$500 | \$1,000 |
|-------|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|-------|-------|-------|---------|
| 1 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 4 | 10 | 19 |
| 2 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 3 | 6 | 19 | 39 |
| 3 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 4 | 8 | 29 | 58 |
| 4 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 2 | 3 | 4 | 4 | 5 | 5 | 5 | 5 | 12 | 49 | 97 |
| 5 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 3 | 4 | 5 | 5 | 6 | 6 | 6 | 6 | 16 | 59 | 136 |
| 6 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 4 | 5 | 6 | 6 | 7 | 7 | 7 | 7 | 19 | 68 | 136 |
| 7 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 4 | 6 | 7 | 7 | 8 | 8 | 8 | 8 | 21 | 76 | 153 |
| 8 | 0 | 0 | 0 | 1 | 1 | 2 | 2 | 5 | 6 | 8 | 8 | 9 | 9 | 9 | 9 | 23 | 85 | 170 |
| 9 | 0 | 0 | 0 | 1 | 1 | 2 | 3 | 5 | 7 | 9 | 9 | 10 | 10 | 10 | 10 | 27 | 94 | 187 |
| 10 | 0 | 0 | 0 | 1 | 1 | 2 | 3 | 6 | 8 | 10 | 10 | 11 | 11 | 11 | 11 | 30 | 103 | 204 |
| 11 | 0 | 0 | 0 | 1 | 1 | 3 | 4 | 6 | 9 | 11 | 11 | 12 | 12 | 12 | 12 | 33 | 112 | 225 |
| 12 | 0 | 0 | 0 | 1 | 2 | 3 | 4 | 7 | 10 | 12 | 12 | 13 | 13 | 13 | 13 | 35 | 121 | 243 |
| 13 | 0 | 0 | 0 | 1 | 2 | 3 | 5 | 7 | 11 | 13 | 13 | 14 | 14 | 14 | 14 | 38 | 130 | 266 |
| 14 | 0 | 0 | 0 | 1 | 2 | 3 | 5 | 8 | 12 | 14 | 14 | 15 | 15 | 15 | 15 | 40 | 139 | 280 |
| 15 | 0 | 0 | 0 | 1 | 2 | 4 | 6 | 8 | 13 | 15 | 15 | 16 | 16 | 16 | 16 | 43 | 148 | 294 |
| 16 | 0 | 0 | 0 | 1 | 2 | 4 | 6 | 9 | 14 | 16 | 16 | 17 | 17 | 17 | 17 | 46 | 157 | 308 |
| 17 | 0 | 0 | 0 | 1 | 3 | 5 | 7 | 10 | 15 | 17 | 17 | 18 | 18 | 18 | 18 | 49 | 166 | 322 |
| 18 | 0 | 0 | 0 | 1 | 3 | 5 | 8 | 11 | 16 | 18 | 18 | 19 | 19 | 19 | 19 | 52 | 175 | 336 |
| 19 | 0 | 0 | 0 | 1 | 3 | 5 | 8 | 12 | 17 | 19 | 19 | 20 | 20 | 20 | 20 | 55 | 184 | 350 |
| 20 | 0 | 0 | 0 | 1 | 3 | 6 | 9 | 13 | 18 | 20 | 20 | 21 | 21 | 21 | 21 | 58 | 193 | 364 |
| 21 | 0 | 0 | 0 | 1 | 3 | 6 | 9 | 14 | 19 | 21 | 21 | 22 | 22 | 22 | 22 | 61 | 202 | 378 |
| 22 | 0 | 0 | 0 | 1 | 3 | 6 | 10 | 15 | 20 | 22 | 22 | 23 | 23 | 23 | 23 | 64 | 211 | 392 |
| 23 | 0 | 0 | 0 | 1 | 3 | 7 | 11 | 16 | 21 | 23 | 23 | 24 | 24 | 24 | 24 | 67 | 220 | 406 |
| 24 | 0 | 0 | 0 | 1 | 3 | 7 | 11 | 17 | 22 | 24 | 24 | 25 | 25 | 25 | 25 | 70 | 229 | 420 |
| 25 | 0 | 0 | 0 | 1 | 3 | 7 | 12 | 18 | 23 | 25 | 25 | 26 | 26 | 26 | 26 | 73 | 238 | 434 |
| 26 | 0 | 0 | 0 | 1 | 3 | 7 | 12 | 19 | 24 | 26 | 26 | 27 | 27 | 27 | 27 | 76 | 247 | 448 |
| 27 | 0 | 0 | 0 | 1 | 3 | 8 | 13 | 20 | 25 | 27 | 27 | 28 | 28 | 28 | 28 | 79 | 256 | 462 |
| 28 | 0 | 0 | 0 | 1 | 3 | 8 | 13 | 21 | 26 | 28 | 28 | 29 | 29 | 29 | 29 | 82 | 265 | 476 |
| 29 | 0 | 0 | 0 | 1 | 3 | 8 | 14 | 22 | 27 | 29 | 29 | 30 | 30 | 30 | 30 | 85 | 274 | 490 |
| 30 | 0 | 0 | 0 | 1 | 3 | 8 | 14 | 23 | 28 | 30 | 30 | 31 | 31 | 31 | 31 | 88 | 283 | 504 |
| 31 | 0 | 0 | 0 | 1 | 3 | 9 | 15 | 24 | 29 | 31 | 31 | 32 | 32 | 32 | 32 | 91 | 292 | 518 |
| 32 | 0 | 0 | 0 | 1 | 3 | 9 | 15 | 25 | 30 | 32 | 32 | 33 | 33 | 33 | 33 | 94 | 301 | 532 |
| 33 | 0 | 0 | 0 | 1 | 3 | 9 | 16 | 26 | 31 | 33 | 33 | 34 | 34 | 34 | 34 | 97 | 310 | 546 |
| 34 | 0 | 0 | 0 | 1 | 3 | 9 | 16 | 27 | 32 | 34 | 34 | 35 | 35 | 35 | 35 | 100 | 319 | 560 |
| 35 | 0 | 0 | 0 | 1 | 3 | 9 | 17 | 28 | 33 | 35 | 35 | 36 | 36 | 36 | 36 | 103 | 328 | 574 |
| 36 | 0 | 0 | 0 | 1 | 3 | 9 | 17 | 29 | 34 | 36 | 36 | 37 | 37 | 37 | 37 | 106 | 337 | 588 |
| 37 | 0 | 0 | 0 | 1 | 3 | 9 | 17 | 30 | 35 | 37 | 37 | 38 | 38 | 38 | 38 | 109 | 346 | 602 |
| 38 | 0 | 0 | 0 | 1 | 3 | 9 | 18 | 31 | 36 | 38 | 38 | 39 | 39 | 39 | 39 | 112 | 355 | 616 |
| 39 | 0 | 0 | 0 | 1 | 3 | 9 | 18 | 32 | 37 | 39 | 39 | 40 | 40 | 40 | 40 | 115 | 364 | 630 |
| 40 | 0 | 0 | 0 | 1 | 3 | 9 | 18 | 33 | 38 | 40 | 40 | 41 | 41 | 41 | 41 | 118 | 373 | 644 |
| 41 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 34 | 39 | 41 | 41 | 42 | 42 | 42 | 42 | 121 | 382 | 658 |
| 42 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 35 | 40 | 42 | 42 | 43 | 43 | 43 | 43 | 124 | 391 | 672 |
| 43 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 36 | 41 | 43 | 43 | 44 | 44 | 44 | 44 | 127 | 400 | 686 |
| 44 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 37 | 42 | 44 | 44 | 45 | 45 | 45 | 45 | 130 | 409 | 700 |
| 45 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 38 | 43 | 45 | 45 | 46 | 46 | 46 | 46 | 133 | 418 | 714 |
| 46 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 39 | 44 | 46 | 46 | 47 | 47 | 47 | 47 | 136 | 427 | 728 |
| 47 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 40 | 45 | 47 | 47 | 48 | 48 | 48 | 48 | 139 | 436 | 742 |
| 48 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 41 | 46 | 48 | 48 | 49 | 49 | 49 | 49 | 142 | 445 | 756 |
| 49 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 42 | 47 | 49 | 49 | 50 | 50 | 50 | 50 | 145 | 454 | 770 |
| 50 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 43 | 48 | 50 | 50 | 51 | 51 | 51 | 51 | 148 | 463 | 784 |
| 51 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 44 | 49 | 51 | 51 | 52 | 52 | 52 | 52 | 151 | 472 | 798 |
| 52 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 45 | 50 | 52 | 52 | 53 | 53 | 53 | 53 | 154 | 481 | 812 |
| 53 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 46 | 51 | 53 | 53 | 54 | 54 | 54 | 54 | 157 | 490 | 826 |
| 54 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 47 | 52 | 54 | 54 | 55 | 55 | 55 | 55 | 160 | 499 | 840 |
| 55 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 48 | 53 | 55 | 55 | 56 | 56 | 56 | 56 | 163 | 508 | 854 |
| 56 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 49 | 54 | 56 | 56 | 57 | 57 | 57 | 57 | 166 | 517 | 868 |
| 57 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 50 | 55 | 57 | 57 | 58 | 58 | 58 | 58 | 169 | 526 | 882 |
| 58 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 51 | 56 | 58 | 58 | 59 | 59 | 59 | 59 | 172 | 535 | 896 |
| 59 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 52 | 57 | 59 | 59 | 60 | 60 | 60 | 60 | 175 | 544 | 910 |
| 60 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 53 | 58 | 60 | 60 | 61 | 61 | 61 | 61 | 178 | 553 | 924 |
| 61 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 54 | 59 | 61 | 61 | 62 | 62 | 62 | 62 | 181 | 562 | 938 |
| 62 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 55 | 60 | 62 | 62 | 63 | 63 | 63 | 63 | 184 | 571 | 952 |
| 63 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 56 | 61 | 63 | 63 | 64 | 64 | 64 | 64 | 187 | 580 | 966 |
| 64 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 57 | 62 | 64 | 64 | 65 | 65 | 65 | 65 | 190 | 589 | 980 |
| 65 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 58 | 63 | 65 | 65 | 66 | 66 | 66 | 66 | 193 | 598 | 994 |
| 66 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 59 | 64 | 66 | 66 | 67 | 67 | 67 | 67 | 196 | 607 | 1008 |
| 67 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 60 | 65 | 67 | 67 | 68 | 68 | 68 | 68 | 199 | 616 | 1022 |
| 68 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 61 | 66 | 68 | 68 | 69 | 69 | 69 | 69 | 202 | 625 | 1036 |
| 69 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 62 | 67 | 69 | 69 | 70 | 70 | 70 | 70 | 205 | 634 | 1050 |
| 70 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 63 | 68 | 70 | 70 | 71 | 71 | 71 | 71 | 208 | 643 | 1064 |
| 71 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 64 | 69 | 71 | 71 | 72 | 72 | 72 | 72 | 211 | 652 | 1078 |
| 72 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 65 | 70 | 72 | 72 | 73 | 73 | 73 | 73 | 214 | 661 | 1092 |
| 73 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 66 | 71 | 73 | 73 | 74 | 74 | 74 | 74 | 217 | 670 | 1106 |
| 74 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 67 | 72 | 74 | 74 | 75 | 75 | 75 | 75 | 220 | 679 | 1120 |
| 75 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 68 | 73 | 75 | 75 | 76 | 76 | 76 | 76 | 223 | 688 | 1134 |
| 76 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 69 | 74 | 76 | 76 | 77 | 77 | 77 | 77 | 226 | 697 | 1148 |
| 77 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 70 | 75 | 77 | 77 | 78 | 78 | 78 | 78 | 229 | 706 | 1162 |
| 78 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 71 | 76 | 78 | 78 | 79 | 79 | 79 | 79 | 232 | 715 | 1176 |
| 79 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 72 | 77 | 79 | 79 | 80 | 80 | 80 | 80 | 235 | 724 | 1190 |
| 80 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 73 | 78 | 80 | 80 | 81 | 81 | 81 | 81 | 238 | 733 | 1204 |
| 81 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 74 | 79 | 81 | 81 | 82 | 82 | 82 | 82 | 241 | 742 | 1218 |
| 82 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 75 | 80 | 82 | 82 | 83 | 83 | 83 | 83 | 244 | 751 | 1232 |
| 83 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 76 | 81 | 83 | 83 | 84 | 84 | 84 | 84 | 247 | 760 | 1246 |
| 84 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 77 | 82 | 84 | 84 | 85 | 85 | 85 | 85 | 250 | 769 | 1260 |
| 85 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 78 | 83 | 85 | 85 | 86 | 86 | 86 | 86 | 253 | 778 | 1274 |
| 86 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 79 | 84 | 86 | 86 | 87 | 87 | 87 | 87 | 256 | 787 | 1288 |
| 87 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 80 | 85 | 87 | 87 | 88 | 88 | 88 | 88 | 259 | 796 | 1302 |
| 88 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 81 | 86 | 88 | 88 | 89 | 89 | 89 | 89 | 262 | 805 | 1316 |
| 89 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 82 | 87 | 89 | 89 | 90 | 90 | 90 | 90 | 265 | 814 | 1330 |
| 90 | 0 | 0 | 0 | 1 | 3 | 9 | 19 | 83 | 88 | 90 | 90 | 91 | 91 | 91 | 91 | 268 | 823 | 1344 |
| 91 | 0 | 0 | | | | | | | | | | | | | | | | |

EIGHT PER CENT. INTEREST TABLE.

| TIME. | \$1 | \$2 | \$3 | \$4 | \$5 | \$6 | \$7 | \$8 | \$9 | \$10 | \$100 | \$1000 |
|------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-------|--------|
| 1 DAY..... | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 2 | 22 |
| 2 " | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 4 | 44 |
| 3 " | 0 | 0 | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 7 | 67 |
| 4 " | 0 | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 9 | 89 |
| 5 " | 0 | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 11 | 1.11 |
| 6 " | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 1 | 13 | 1.33 |
| 7 " | 0 | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 16 | 1.56 |
| 8 " | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 18 | 1.78 |
| 9 " | 0 | 0 | 1 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 20 | 2.00 |
| 10 " | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 22 | 2.22 |
| 11 " | 0 | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 24 | 2.44 |
| 12 " | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 27 | 2.67 |
| 13 " | 0 | 1 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 29 | 2.89 |
| 14 " | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 2 | 3 | 3 | 31 | 3.11 |
| 15 " | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 33 | 3.33 |
| 16 " | 0 | 1 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 4 | 36 | 3.56 |
| 17 " | 0 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 38 | 3.78 |
| 18 " | 0 | 1 | 1 | 2 | 2 | 2 | 3 | 3 | 4 | 4 | 40 | 4.00 |
| 19 " | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | 42 | 4.22 |
| 20 " | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 4 | 44 | 4.44 |
| 21 " | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 47 | 4.67 |
| 22 " | 0 | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 49 | 4.89 |
| 23 " | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 51 | 5.11 |
| 24 " | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 5 | 53 | 5.33 |
| 25 " | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 4 | 5 | 6 | 56 | 5.56 |
| 26 " | 1 | 1 | 2 | 2 | 3 | 3 | 4 | 5 | 5 | 6 | 58 | 5.78 |
| 27 " | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 5 | 6 | 60 | 6.00 |
| 28 " | 1 | 1 | 2 | 2 | 3 | 4 | 4 | 5 | 6 | 6 | 62 | 6.22 |
| 29 " | 1 | 1 | 2 | 3 | 3 | 4 | 5 | 5 | 6 | 6 | 64 | 6.44 |
| 1 MON..... | 1 | 1 | 2 | 3 | 3 | 4 | 5 | 5 | 6 | 7 | 67 | 6.67 |
| 2 " | 1 | 3 | 4 | 5 | 7 | 8 | 9 | 11 | 12 | 13 | 1.33 | 13.33 |
| 3 " | 2 | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 2.00 | 20.00 |
| 4 " | 3 | 5 | 8 | 11 | 13 | 16 | 19 | 21 | 24 | 27 | 2.67 | 26.67 |
| 5 " | 3 | 7 | 10 | 13 | 17 | 20 | 23 | 27 | 30 | 33 | 3.33 | 33.33 |
| 6 " | 4 | 8 | 12 | 16 | 20 | 24 | 28 | 32 | 35 | 40 | 4.00 | 40.00 |
| 7 " | 5 | 9 | 14 | 19 | 23 | 28 | 33 | 37 | 42 | 47 | 4.67 | 46.67 |
| 8 " | 5 | 11 | 16 | 21 | 27 | 32 | 37 | 43 | 48 | 53 | 5.33 | 53.33 |
| 9 " | 6 | 12 | 18 | 24 | 30 | 36 | 42 | 48 | 54 | 60 | 6.00 | 60.00 |
| 10 " | 7 | 13 | 20 | 27 | 33 | 40 | 47 | 53 | 60 | 67 | 6.67 | 66.67 |
| 11 " | 7 | 15 | 22 | 29 | 37 | 44 | 51 | 59 | 66 | 73 | 7.33 | 73.33 |
| 1 YEAR.... | 8 | 16 | 24 | 32 | 40 | 48 | 56 | 64 | 72 | 80 | 8.00 | 80.00 |

Builders' Estimating Tables.

Table showing quantity of material in every four lineal feet of exterior wall in a balloon frame building, height of wall being given:

| Length of Studs. | Size of Sills. | Size of Studs, Braces, etc. | Quantity of Rough Lumber. | Quantity of Inch Boarding | Siding in sup. feet. | Tar Paper in sup. feet. |
|------------------|----------------|-----------------------------|---------------------------|---------------------------|----------------------|-------------------------|
| 8 | 6x 6 | 2x4 studs. | 42 | 36 | 40 | 74 |
| 10 | 6x 8 | 4x4 braces. | 52 | 44 | 50 | 80 |
| 12 | 6x10 | 4x4 plates. | 62 | 53 | 60 | 96 |
| 14 | 6x10 | 1x6 ribbons. | 69 | 62 | 70 | 112 |
| 16 | 8x10 | | 82 | 71 | 80 | 128 |
| 18 | 8x10 | studs | 87 | 80 | 90 | 144 |
| 20 | 8x12 | 16 inches from | 98 | 88 | 100 | 160 |
| 22 | 9x12 | centers. | 109 | 97 | 110 | 176 |
| 24 | 10x12 | | 119 | 106 | 120 | 192 |
| 18 | 10x10 | 2x6 studs. | 122 | 80 | 90 | 144 |
| 20 | 10x12 | 6x6 braces. | 137 | 88 | 100 | 160 |
| 22 | 10x12 | 4x6 plates. | 145 | 97 | 110 | 176 |
| 24 | 12x12 | 1x6 ribbons. | 162 | 106 | 120 | 192 |
| 26 | 10x14 | | 169 | 114 | 130 | 208 |
| 28 | 10x14 | studs 16 inch centers. | 176 | 123 | 140 | 224 |
| 30 | 12x14 | | 198 | 132 | 150 | 240 |

Table showing amount of lumber in rafters, collar-piece and boarding, and number of shingles to four lineal feet of roof, measured from eave to eave over ridge. Rafters 16-inch centers:

| Width of House. Feet. | Size of Rafters. | Size of Collar-piece. | Quantity of Lumber in Rafter and Collar-piece. | Quant'y of Board'g Feet. | No. of Shingl's |
|-----------------------|------------------|-----------------------|--|--------------------------|-----------------|
| 14 | 2x4 | 2x4 | 39 | 91 | 560 |
| 16 | 2x4 | 2x4 | 45 | 70 | 640 |
| 18 | 2x4 | 2x4 | 50 | 79 | 720 |
| 20 | 2x4 | 2x4 | 56 | 88 | 800 |
| 22 | 2x4 | 2x4 | 62 | 97 | 880 |
| 24 | 2x4 | 2x4 | 67 | 106 | 960 |
| 26 | 2x6 | 2x6 | 84 | 88 | 800 |
| 22 | 2x6 | 2x6 | 92 | 97 | 880 |
| 24 | 2x6 | 2x6 | 101 | 106 | 960 |
| 26 | 2x6 | 2x6 | 109 | 115 | 1040 |
| 28 | 2x6 | 2x6 | 117 | 124 | 1120 |
| 30 | 2x6 | 2x6 | 126 | 133 | 1200 |

WAGES TABLES — VALUE OF TIME — FOR DAYS, AT STATED RATES PER MONTH.

| Rate. | \$14 | \$15 | \$16 | \$17 | \$18 | \$19 | \$20 | \$21 | \$22 | \$23 | \$24 | \$25 |
|---------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|-------|
| Days. | | | | | | | | | | | | |
| 1..... | .54 | .58 | .62 | .65 | .69 | .73 | .77 | .81 | .85 | .88 | .92 | .96 |
| 2..... | 1.08 | 1.15 | 1.23 | 1.31 | 1.38 | 1.46 | 1.54 | 1.62 | 1.69 | 1.77 | 1.85 | 1.92 |
| 3..... | 1.62 | 1.73 | 1.85 | 1.96 | 2.08 | 2.19 | 2.31 | 2.42 | 2.54 | 2.65 | 2.77 | 2.88 |
| 4..... | 2.15 | 2.31 | 2.46 | 2.62 | 2.77 | 2.92 | 3.08 | 3.23 | 3.38 | 3.54 | 3.69 | 3.85 |
| 5..... | 2.69 | 2.88 | 3.08 | 3.27 | 3.46 | 3.65 | 3.85 | 4.04 | 4.23 | 4.42 | 4.62 | 4.81 |
| 6..... | 3.23 | 3.46 | 3.69 | 3.92 | 4.15 | 4.38 | 4.62 | 4.85 | 5.08 | 5.31 | 5.54 | 5.77 |
| 7..... | 3.77 | 4.04 | 4.31 | 4.58 | 4.85 | 5.12 | 5.38 | 5.65 | 5.92 | 6.19 | 6.46 | 6.73 |
| 8..... | 4.31 | 4.62 | 4.92 | 5.23 | 5.54 | 5.85 | 6.15 | 6.46 | 6.77 | 7.08 | 7.38 | 7.69 |
| 9..... | 4.85 | 5.19 | 5.54 | 5.88 | 6.23 | 6.58 | 6.92 | 7.27 | 7.62 | 7.96 | 8.31 | 8.65 |
| 10..... | 5.38 | 5.77 | 6.15 | 6.54 | 6.92 | 7.31 | 7.69 | 8.08 | 8.46 | 8.85 | 9.23 | 9.62 |
| 11..... | 5.92 | 6.35 | 6.77 | 7.19 | 7.62 | 8.04 | 8.46 | 8.88 | 9.31 | 9.73 | 10.15 | 10.58 |
| 12..... | 6.46 | 6.92 | 7.38 | 7.85 | 8.31 | 8.77 | 9.23 | 9.69 | 10.15 | 10.62 | 11.08 | 11.54 |
| 13..... | 7.00 | 7.50 | 8.00 | 8.50 | 9.00 | 9.50 | 10.00 | 10.50 | 11.00 | 11.50 | 12.00 | 12.50 |
| 14..... | 7.54 | 8.08 | 8.62 | 9.15 | 9.69 | 10.23 | 10.77 | 11.31 | 11.85 | 12.38 | 12.92 | 13.46 |
| 15..... | 8.08 | 8.65 | 9.23 | 9.81 | 10.38 | 10.96 | 11.54 | 12.12 | 12.69 | 13.27 | 13.85 | 14.42 |
| 16..... | 8.62 | 9.23 | 9.85 | 10.46 | 11.08 | 11.69 | 12.31 | 12.92 | 13.54 | 14.15 | 14.77 | 15.38 |
| 17..... | 9.15 | 9.81 | 10.46 | 11.12 | 11.77 | 12.42 | 13.08 | 13.73 | 14.38 | 15.04 | 15.69 | 16.35 |
| 18..... | 9.69 | 10.38 | 11.08 | 11.77 | 12.46 | 13.15 | 13.85 | 14.54 | 15.23 | 15.92 | 16.62 | 17.31 |
| 19..... | 10.23 | 10.95 | 11.69 | 12.42 | 13.15 | 13.88 | 14.62 | 15.35 | 16.08 | 16.81 | 17.54 | 18.27 |
| 20..... | 10.77 | 11.54 | 12.31 | 13.08 | 13.85 | 14.62 | 15.38 | 16.15 | 16.92 | 17.69 | 18.46 | 19.23 |
| 21..... | 11.31 | 12.12 | 12.92 | 13.73 | 14.54 | 15.35 | 16.15 | 16.96 | 17.77 | 18.58 | 19.38 | 20.19 |
| 22..... | 11.85 | 12.69 | 13.54 | 14.38 | 15.23 | 16.08 | 16.92 | 17.77 | 18.62 | 19.46 | 20.31 | 21.15 |
| 23..... | 12.38 | 13.27 | 14.15 | 15.04 | 15.92 | 16.81 | 17.69 | 18.58 | 19.46 | 20.35 | 21.23 | 22.12 |
| 24..... | 12.92 | 13.85 | 14.77 | 15.69 | 16.62 | 17.54 | 18.46 | 19.38 | 20.31 | 21.23 | 22.15 | 23.08 |
| 25..... | 13.46 | 14.42 | 15.38 | 16.35 | 17.31 | 18.27 | 19.23 | 20.19 | 21.15 | 22.12 | 23.08 | 24.04 |
| 26..... | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 | 20.00 | 21.00 | 22.00 | 23.00 | 24.00 | 25.00 |

| Six Days' Wages. | One Day. | Eight Hours. | Six Hours. | Five Hours. | Four Hours. | Two Hours. | One Hour. |
|------------------|--------------------|----------------------|------------|--------------------|--------------------|------------------|------------------|
| \$2 | 33 $\frac{1}{3}$ | 26 $\frac{2}{3}$ | 20 | 16 $\frac{2}{3}$ | 13 $\frac{1}{3}$ | 6 $\frac{2}{3}$ | 3 $\frac{1}{3}$ |
| 3 | 50 | 40 | 30 | 25 | 20 | 10 | 5 |
| 4 | 66 $\frac{2}{3}$ | 53 $\frac{1}{3}$ | 40 | 33 $\frac{1}{3}$ | 26 $\frac{2}{3}$ | 13 $\frac{1}{3}$ | 6 $\frac{2}{3}$ |
| 5 | 83 $\frac{1}{3}$ | 66 $\frac{2}{3}$ | 50 | 41 $\frac{2}{3}$ | 33 $\frac{1}{3}$ | 16 $\frac{2}{3}$ | 8 $\frac{1}{3}$ |
| 6 | \$1 00 | 80 | 60 | 50 | 40 | 20 | 10 |
| 7 | 1 16 $\frac{2}{3}$ | 93 $\frac{1}{3}$ | 70 | 58 $\frac{1}{3}$ | 46 $\frac{2}{3}$ | 23 $\frac{1}{3}$ | 11 $\frac{2}{3}$ |
| 8 | 1 33 $\frac{1}{3}$ | \$1 06 $\frac{2}{3}$ | 80 | 66 $\frac{2}{3}$ | 53 $\frac{1}{3}$ | 26 $\frac{2}{3}$ | 13 $\frac{1}{3}$ |
| 9 | 1 50 | 1 20 | 90 | 75 | 60 | 30 | 15 |
| 10 | 1 66 $\frac{2}{3}$ | 1 33 $\frac{1}{3}$ | \$1 20 | 83 $\frac{1}{3}$ | 66 $\frac{2}{3}$ | 33 $\frac{1}{3}$ | 16 $\frac{2}{3}$ |
| 11 | 1 83 $\frac{1}{3}$ | 1 46 $\frac{2}{3}$ | 1 10 | 91 $\frac{2}{3}$ | 73 $\frac{1}{3}$ | 36 $\frac{2}{3}$ | 18 $\frac{1}{3}$ |
| 12 | 2 00 | 1 60 | 1 20 | \$1 00 | 80 | 40 | 20 |
| 13 | 2 16 $\frac{2}{3}$ | 1 73 $\frac{1}{3}$ | 1 30 | 1 08 $\frac{1}{3}$ | 86 $\frac{2}{3}$ | 43 $\frac{1}{3}$ | 21 $\frac{2}{3}$ |
| 14 | 2 33 $\frac{1}{3}$ | 1 86 $\frac{2}{3}$ | 1 40 | 1 16 $\frac{2}{3}$ | 93 $\frac{1}{3}$ | 46 $\frac{2}{3}$ | 23 $\frac{1}{3}$ |
| 15 | 2 50 | 2 00 | 1 50 | 1 25 | \$1 00 | 50 | 25 |
| 16 | 2 66 $\frac{2}{3}$ | 2 13 $\frac{1}{3}$ | 1 60 | 1 33 $\frac{1}{3}$ | 1 06 $\frac{2}{3}$ | 53 $\frac{1}{3}$ | 26 $\frac{1}{2}$ |
| 17 | 2 83 $\frac{1}{3}$ | 2 26 $\frac{2}{3}$ | 1 70 | 1 41 $\frac{2}{3}$ | 1 13 $\frac{1}{3}$ | 56 $\frac{2}{3}$ | 28 $\frac{1}{2}$ |
| 18 | 3 00 | 2 40 | 1 80 | 1 50 | 1 20 | 60 | 30 |
| 19 | 3 16 $\frac{2}{3}$ | 2 53 $\frac{1}{3}$ | 1 90 | 1 58 $\frac{1}{3}$ | 1 26 $\frac{2}{3}$ | 63 $\frac{1}{3}$ | 31 $\frac{2}{3}$ |
| 20 | 3 33 $\frac{1}{3}$ | 2 66 $\frac{2}{3}$ | 2 00 | 1 66 $\frac{2}{3}$ | 1 33 $\frac{1}{3}$ | 66 $\frac{2}{3}$ | 33 $\frac{1}{3}$ |

Carpenters', Plasterers' and Bricklayers' Work.

To find how many square yards in a floor or wall: *multiply the length by the width or height, and divide the product by 9.*

How many square yards in a floor 18 ft. long and 14 ft. wide; and how many yards of carpet $\frac{3}{4}$ yd. wide, will it take?

To divide by a fraction, multiply the number by the *denominator*, and divide the product by the *numerator*.

To multiply by a fraction, multiply by the *numerator* and divide by the *denominator*.

Find how many square yards in the four walls and ceiling of a room 18 by 20, 11 ft. high; and the cost of plastering the same at 15 cts. per sq. yd.

The length of the *four* walls is (twice 20 and twice 18) 76 feet, which multiplied by the height gives the sq. ft. in the walls. The length multiplied by the width gives the sq. ft. in the ceiling.

$$\begin{array}{r} 28 \\ 4 \\ \hline \end{array}$$

$$\begin{array}{l} 3) 112 (37\frac{1}{3} \text{ yds. carpet} \\ \text{Ans. } 28 \text{ sq. yds.} \\ 37\frac{1}{3} \text{ yds. carpet.} \end{array}$$

$$\begin{array}{l} 76 \times 11 = 836 \text{ sq. ft. in four walls.} \\ 18 \times 20 = 360 \text{ " " " ceiling.} \end{array}$$

$$\begin{array}{r} 9(1196(133 \text{ sq. yds. nearly.} \\ .15 \end{array}$$

Ans. \$19.95 for plastering.

To measure square timbers: *multiply the length, width and thickness together, and divide the product by 12.*

How many square feet in a joist 2 by 8, 18 ft. long?

$$2 \times 8 \times 18 = 288 \div 12 = 24 \text{ ft. Ans}$$

Sill 8 by 8, 22 ft. long? $8 \times 8 \times 22 = 1408 \div 12 = 117\frac{2}{3} \text{ ft. Ans.}$

Amount of Paint Required for a Given Surface.

It is impossible to give a rule that will apply in all cases, as the amount varies with the kind and thickness of the paint, the kind of wood or other material to which it is applied, the age of the surface, etc. The following is an approximate rule: Divide the number of square feet of surface by 200. The result will be the number of gallons of liquid paint required to give two coats; or, divide by 18 and the result will be the number of pounds of pure ground white lead required to give three coats.

How to Kill Grease Spots before Painting.

Wash over smoky or greasy parts with saltpetre, or very thin lime white-wash. If soap-suds are used, they must be washed off thoroughly, as they prevent the paint from drying hard.

Dimensions of One Acre.

A square, whose sides are 12.649 rods, or 69 57 yards or 208.71 feet long, contains one acre. Table of dimensions of rectangle containing one acre:

RODS.

| | | | | | |
|----|------------------------|--------------------------------------|-------|------------------------|---------------------------------|
| 1 | $\times 160$ | $1\frac{1}{2} \times 106\frac{2}{3}$ | 2 | $\times 80$ | $2\frac{1}{2} \times 64$ |
| 3 | $\times 53\frac{1}{3}$ | $3\frac{1}{2} \times 45\ 5-7$ | 4 | $\times 40$ | $4\frac{1}{2} \times 35\ 5-9$ |
| 5 | $\times 32$ | $5\frac{1}{2} \times 29\ 1-11$ | 6 | $\times 26\frac{2}{3}$ | $6\frac{1}{2} \times 24\ 8-13$ |
| 7 | $\times 22\ 6-7$ | $7\frac{1}{2} \times 21\frac{1}{3}$ | 8 | $\times 20$ | $8\frac{1}{2} \times 18\ 14-17$ |
| 9 | $\times 17\ 7-9$ | $9\frac{1}{2} \times 16\ 16-19$ | 10 | $\times 16$ | $10\frac{1}{2} \times 15\ 5-21$ |
| 11 | $\times 14\ 5-11$ | $11\frac{1}{2} \times 13\ 21-33$ | 12 | $\times 13\frac{1}{2}$ | $12\frac{1}{2} \times 12\ 4-5$ |
| .. | .... | .... | ..... | 12 | $13-20 \times 12\ 13-20$ |

Roof Elevations.

By the "pitch" of a roof is meant the relation which the height of the ridge above the level of the roof-plates bears to the span, or the distance between the studs on which the roof rests.

The length of rafters for the most common pitches can be found as follows from any given span:

If $\frac{1}{4}$ pitch, multiply span by 559, or 7-12 nearly.

If $\frac{1}{3}$ " " " " 6 " , or 3-5 "

If $\frac{3}{8}$ " " " " 625, or $\frac{5}{8}$ "

If $\frac{1}{2}$ " " " " .71 , or 7-10 "

If $\frac{5}{8}$ " " " " .8 , or 4-5 "

If full " " " " 1.12, or 1- $\frac{1}{2}$ "

To lengths thus obtained must be added amount of projection on rafters at the eaves.

As rafters must be purchased of even lengths, a few inches more or less on their lengths will make a difference to the pitch so slight that it cannot be detected by the eye.

EXAMPLE.—To determine the length of rafters for a roof constructed one-half pitch, with a span of 24 feet— $24 \times .71 = 17.04$; or, practically, just 17 feet. A projection of one foot for eaves makes the length to be purchased 18 feet.

How To Build Strong Frames.

Sheathing put on diagonally acts as a brace over the whole surface, and requires no more lumber than if put on horizontally. It is well to run the sheathing from each side up parallel with the rafters, if at the gable ends, and at similar angles at the sides. Roofing boards can be put on in the same manner. Studs can be allowed to project above the plates and the rafters spiked to the sides of studs. Partitions should be braced with waste stuff, and in such ways a building can be strengthened that it can be rolled over and over without coming to pieces, and the extra cost will simply consist in a few hours extra labor.

In some parts of the West, and especially in Nebraska, a framed sill is in use, which combines qualities that will make it of service to builders in many localities. A piece of 2x6 or 2x8 is laid upon the wall, and flush with one side of this a 2-inch piece of the same width as the joists is placed on edge and securely spiked on, thus making the bottom and one side of a trough. These can be fastened before being put in place. The joists are placed with their ends upon the bed of the sill and against the side, and spiked to both. The studs are halved down, in this case 8 inches, and nailed to side of sill and joists. The sides of the sill, running parallel with the joists, are formed by two of the joists themselves, either set flush with the face of the wall and the studs let down back, or set back two inches and the studs let down in front.

When the frame is finished, and before the floor is laid, the wall is built up behind and over the sill; thus holding all in place, guarding against wind, as the wall must be torn up before the building will go; and also, incidentally, against rats and other vermin. It will be found fully as strong and much cheaper than timber.

If posts are used for the foundation a modification of this arrangement will prove equally serviceable. The principal on which it depends is explained at length farther on. It is well known that a thin piece of timber put on edge, as in joists, etc., will support a much greater weight than if laid on its side. The strength of a piece is in direct proportion to the square of its depth and nearly inversely as its length. Thus it will be found that simply the 2x12, 8 feet long, without considering the support afforded to it by the walls, would have a strength equal to four 2x4s 16 feet long. It might be objected that the joists would not rest on the 2x12, but on the 2x6. This is partly true, but the joists are spiked to the 2x12, and

are nailed to the studs, which rest on the sill, thus binding the whole together. Particular care must be taken to spike the 2x12 side of the sill to the 2x4 or 2x6 base at short intervals. All the parts must be well nailed together, and especially the studs to the joists, and the sills to the posts. This form will have abundant strength and stiffness if the posts are not over 8 feet apart. A sill constructed in this way, of these dimensions, contains the same number of feet as a 6x6 sill, but will sustain a weight a third greater than the latter, if the weights are placed at the centers, but as the studs are fastened together by the sheathing, the weight will be partly transferred from the sills to the posts. It can also be made of any lengths that will reach from post to post, and the cost can thus be made less.

Shingles Required in a Roof.

To the square foot it takes 9 if exposed four inches; 8 if exposed 5 inches, and 7 1-5 if exposed 5 inches to the weather.

And the number of shingles required to cover a roof 38 ft. long, and the rafters on each side 14 ft. Shingles exposed 4 1/2 inches.

$$28 \times 38 = 1064 \text{ (sq. ft.)} \times 8 = 8512 \text{ shingles. Ans.}$$

To find the length of rafters, giving the roof *one-third* pitch: take *three-fifths* of the width of the building. If the building is 30 feet wide, they must be 18 feet long, exclusive of projection.

The following very useful and practical calculations will be found exceedingly handy, as guide to the builder, in making up his figures when he is called upon to estimate for all portions of a job, many of which are not entirely in his own particular line:

MASON WORK — BRICK.

1 1/8 barrels lime and 5/8 yard sand will lay 1,000 brick.

One man with 1 1/4 tenders will lay 1,800 to 2,000 brick per day.

RUBBLE.

1 1/4 barrels lime and 1 yard of sand will lay 100 feet of stone.

One man will lay 150 feet of stone per day with one tender.

CEMENT.

1 1/4 barrels cement and 3/4 yard sand will lay 100 feet rubble, one. Same time as to mason and tender as rubble.

NUMBER OF NAILS REQUIRED IN CARPENTER WORK.

To case and hang one door, 1 lb.

To case and hang one window, 3/4 lb.

Base, 100 lineal feet, 1 lb.

To put on rafters, joists, etc., 3 lbs. to 1,000 feet.

To put up studding, same.

To lay a 6-inch pine floor, 15 lbs. to 1,000 feet.

LABOR.

To place joists, etc., on wall, \$4 per 1,000.
 Put up jambs and case a door, \$1.50.
 Hanging door and locking, 50c. to 75c.
 Fitting sash, 50c. to 75c.
 Casing window, stool and apron, \$1.00.
 Hang outside blinds, 50c.
 Hang inside blinds, 75c.; if boxed, \$1.00.
 Lay pine floor, 6 in., 30c. per square.
 Lay pine floor, 4 in., 40c. per square.
 Lay walnut floor, 3 in., \$1 per square.
 Roof and sheathing, 25c. per square.
 To lay shingles, per 1,000, 75c. per square.

COST OF PAINTERS' WORK.

1 coat shellac, 50c. per square.
 1 coat lead and oil, 75c. per square.
 2 coats lead and oil, \$1.50 per square.
 3 coats lead and oil, \$2.50 per square.
 Sanding, 1 coat, 75c. per square.
 Grain oak, 2 coats, \$2.50 per square.
 Grain walnut, 2 coats, \$3.00 per square.
 To set glass, 10 per cent. of cost.
 Calcimining, 60c. to 75c. per square.
 1 coat varnish, 50c. per square.

Floor, Wall and Roof Measure.

To find the number of square yards in a floor or wall: **RULE—**
 Multiply the length by the width or height (in feet) and divide the product by 9; the result will be square yards.

ESTIMATES OF MATERIALS.

3½ barrels of lime will do 100 square yards plastering, two coats.
 2 " " " " 100 " " " one coat.
 1½ bushels of hair " 100 " " "
 1¼ yards good sand " 100 " " "
 ⅓ barrel of plaster (stucco) will hard-finish 100 square yards plastering.

1 barrel of lime will lay 1,000 bricks. (It takes good lime to do it.)

2 barrels of lime will lay 1 cord rubble stone.

½ barrel of lime will lay 1 perch rubble stone. (Estimating ⅞ cord to perch.)

To every barrel of lime estimate about ⅝ yards of good sand for plastering and brick work.

IRON FURNACES.—There are about 690 iron furnaces in the United States. These turned out, in 1882, over 5,000,000 tons of pig iron.

THE LARGEST TELESCOPE in the world is the Lord Rosse, which has an aperture of seventy-two inches. The largest in this country is at San Jose, Cal., having an aperture of twenty-eight inches.

Useful Information for Architects and Builders.

NUMBER OF NAILS AND TACKS PER POUND.

| | | NAILS. | | No. | TACKS. | | No. |
|----------|-------|----------------------|----|----------|-----------------------|-----------------|---------|
| | | Size. | in | per lb. | Length. | inch. | per lb. |
| 6 penny, | fence | 2 | | 80 nails | 1 oz.... | $\frac{1}{3}$ | 16,000 |
| 8 | " | 2 $\frac{1}{2}$ | " | 50 " | 1 $\frac{1}{4}$ ".... | 3-16 | 10,666 |
| 10 | " | 3 | " | 34 " | 2 ".... | $\frac{1}{4}$ | 8,000 |
| 12 | " | 3 $\frac{1}{4}$ | " | 39 " | 2 $\frac{1}{2}$ ".... | 5-16 | 6,400 |
| 3 | fine | 1 $\frac{1}{3}$ | " | 760 " | 3 ".... | $\frac{3}{8}$ | 5,333 |
| 3 | " | 1 $\frac{1}{4}$ | " | 480 " | 4 ".... | 7-16 | 4,000 |
| 4 | " | 1 $\frac{1}{2}$ | " | 300 " | 6 ".... | 9-16 | 2,666 |
| 5 | " | 1 $\frac{3}{4}$ | " | 200 " | 8 ".... | $\frac{5}{8}$ | 2,000 |
| 6 | " | 2 | " | 160 " | 10 ".... | 11-16 | 1,600 |
| 7 | " | 2 $\frac{1}{4}$ | " | 128 " | 12 ".... | $\frac{3}{4}$ | 1,333 |
| 8 | " | 2 $\frac{1}{2}$ | " | 92 " | 14 ".... | 13-16 | 1,143 |
| 9 | " | 2 $\frac{3}{4}$ | " | 72 " | 16 ".... | $\frac{7}{8}$ | 1,000 |
| 10 | " | 3 | " | 60 " | 18 ".... | 15-16 | 888 |
| 12 | " | 3 $\frac{1}{4}$ | " | 44 " | 20 ".... | 1 | 800 |
| 16 | " | 3 $\frac{1}{2}$ | " | 32 " | 22 ".... | 1 1-16 | 727 |
| 2 | " | 4 | " | 24 " | 24 ".... | 1 $\frac{1}{8}$ | 56 |
| 3 | " | 4 $\frac{1}{4}$ | " | 18 " | | | |
| 4 | " | 5 | " | 14 " | | | |
| 5 | " | 5 $\frac{1}{2}$ | " | 12 " | | | |

1,000 shingles, laid 4 inches to the weather, will cover 100 square feet of surface, and 5 lbs. of shingle nails will fasten them on.

One-fifth more siding and flooring is needed than the number of square feet of surface to be covered, because of the lap in the siding and matching.

1,000 laths will cover 70 yards of surface, and 11 lbs. of lathe nails will nail them on; 8 bushels of good lime, 16 bushels of sand, and 1 bushel of hair, will make enough good mortar to plaster 100 square yards.

A cord of stone, 3 bushels of lime, and a cubic yard of sand, will lay 100 cubic feet of wall.

Five courses of brick will lay 1 foot in height on a chimney; 16 bricks in a course will make a flue 4 ins. wide and 12 ins. long, and 8 bricks in a course will make a flue 8 ins. wide and 16 ins. long.

Cement 1 bush. and sand 2 bush. will cover 3 $\frac{1}{2}$ sq. yds. 1 inch thick, 4 $\frac{1}{2}$ sq. yds. $\frac{3}{4}$ inch thick, and 6 $\frac{3}{4}$ sq. yds. $\frac{1}{2}$ inch thick; 1 bush. cement and 1 of sand will cover 2 $\frac{1}{4}$ sq. yds. 1 in. thick, 3 square yards $\frac{3}{4}$ inch thick, and 4 $\frac{1}{2}$ square yards $\frac{1}{2}$ inch thick.

Quantity of Bricks Required to Construct a Building.

| Superficial Feet of Wall. | Number of Bricks to Thickness of | | | | | |
|---------------------------|----------------------------------|---------|----------|----------|----------|----------|
| | 4 inch. | 8 inch. | 12 inch. | 16 inch. | 20 inch. | 24 inch. |
| 1..... | 7 | 15 | 22 | 29 | 37 | 45 |
| 2..... | 15 | 30 | 45 | 60 | 75 | 90 |
| 3..... | 23 | 45 | 68 | 90 | 113 | 135 |
| 4..... | 30 | 60 | 90 | 120 | 150 | 180 |
| 5..... | 38 | 75 | 113 | 150 | 188 | 225 |
| 6..... | 45 | 90 | 135 | 180 | 225 | 270 |
| 7..... | 53 | 105 | 158 | 210 | 263 | 315 |
| 8..... | 60 | 120 | 180 | 240 | 300 | 360 |
| 9..... | 68 | 135 | 203 | 270 | 338 | 405 |
| 10..... | 75 | 150 | 225 | 300 | 375 | 450 |
| 20..... | 150 | 300 | 450 | 600 | 750 | 900 |
| 30..... | 225 | 450 | 675 | 900 | 1,125 | 1,350 |
| 40..... | 300 | 600 | 900 | 1,200 | 1,500 | 1,800 |
| 50..... | 375 | 750 | 1,125 | 1,500 | 1,875 | 2,250 |
| 60..... | 450 | 900 | 1,350 | 1,800 | 2,250 | 2,700 |
| 70..... | 525 | 1,050 | 1,575 | 2,100 | 2,625 | 3,150 |
| 80..... | 600 | 1,200 | 1,800 | 2,400 | 3,000 | 3,600 |
| 90..... | 675 | 1,350 | 2,025 | 2,700 | 3,375 | 4,050 |
| 100..... | 750 | 1,500 | 2,250 | 3,000 | 3,750 | 4,500 |
| 200..... | 1,500 | 3,000 | 4,500 | 6,000 | 7,500 | 9,000 |
| 300..... | 2,250 | 4,500 | 6,750 | 9,000 | 11,250 | 13,500 |
| 400..... | 3,000 | 6,000 | 9,000 | 12,000 | 15,000 | 18,000 |

VALUE OF DIAMONDS.

Diamonds averaging one-half carat each, \$60 per carat.

Diamonds averaging three-quarters carat each, \$80 per carat.

Diamonds averaging one carat each, \$100 per carat.

Diamonds averaging one and one-quarter carats each, \$110 per carat.

Diamonds averaging one and one-half carats each, \$120 per carat.

Diamonds averaging one and three-quarters carats each, \$145 per carat.

Diamonds averaging two carats each, \$175 per carat.

In other words, the value of the gem increases in the geometrical ratio of its weight. Four diamonds weighing together two carats are worth \$120; but one diamond weighing just as much is worth \$350. Stones weighing over two carats are about the same price per carat as two-carat stones: they should be dearer, but they are not, simply because the demand for them is limited. If the demand for diamonds were as imperative as the demand for flour or beef, the geometrical ratio would again come into play, and five-carat stones would be valued in the thousands.

TABLE showing the requisite sizes of girders and joists for warehouses, the span and distance apart being given:

| Distance apart. | SPAN OF GIRDERS. | | | | Joists. | REMARKS. |
|-----------------|------------------|---------|----------|----------|---------|--|
| | 6 Feet. | 8 Feet. | 10 Feet. | 12 Feet. | | |
| Feet. | Inches. | Inches. | Inches. | Inches. | Inches. | Girders to have a bearing at each end and joists six inches. |
| 10 | 8x13 | 12x13 | 12x16 | 14x18 | 2½x10 | |
| 12 | 9x12 | 12x14 | 12x18 | 16x18 | 3 x10 | |
| 14 | 10x12 | 12x15 | 14x18 | ..... | 3 x12 | |

TABLE showing quantity of lumber in every four lineal feet of partition, studs being placed 16 centers, waste included:

| Height of partition. Feet. | Quantity of Studs 2x4. Feet. | If 2x6. Feet. |
|-------------------------------|---------------------------------|------------------|
| 8 | 26 | 30 |
| 9 | 23 | 34 |
| 10 | 26 | 38 |
| 11 | 29 | 42 |
| 12 | 32 | 46 |
| 13 | 35 | 51 |
| 14 | 38 | 55 |
| 15 | 41 | 59 |
| 16 | 44 | 64 |

TABLE as before, adapted for churches, public halls, etc.

| Distance apart. | SPAN OF GIRDERS. | | | | Joists. | REMARKS. |
|-----------------|------------------|---------|---------|---------|------------------|---|
| | 6 Feet. | 8 Feet. | 10 Ft. | 12 Ft. | | |
| | Inches. | Inches. | Inches. | Inches. | | |
| 12 | 6x10 | 8x12 | 12x14 | 12x16 | Inches. 2 x 8 | Bearings of girders and joists as above. |
| 13 | 6x11 | 9x12 | 11x15 | 12x17 | 2 x 9 | |
| 14 | 6x12 | 10x12 | 12x15 | 11x18 | 2 x 9 | |
| 15 | 7x12 | 11x12 | 11x16 | 12x16 | 2 x 10 | |
| 16 | 8x12 | 12x12 | 12x16 | 13x18 | 2 x 10 | |
| 17 | 8x12 | 9x14 | 12x17 | 14x18 | 2 x 12 | Both tables are calculated for yellow pine. |
| 18 | 9x12 | 10x14 | 11x18 | ..... | 2 x 12 | |
| 19 | 9x12 | 11x14 | 12x18 | ..... | 2½ x 12 | |
| 20 | 10x12 | 12x14 | 13x18 | ..... | 2½ x 12 | |
| 21 | 10x12 | 11x15 | 14x18 | ..... | 2½ x 12 | |
| 22 | 11x12 | 12x15 | ..... | ..... | 3 x 12 | |
| 23 | 11x12 | 11x16 | ..... | ..... | 3 x 12 | |
| 24 | 10x12 | 12x16 | ..... | ..... | 3 x 13 | |
| 25 | 10x13 | 12x17 | ..... | ..... | 3 x 13 | |
| 26 | 10x14 | 12x18 | ..... | ..... | 3 x 14 | |
| 27 | 10x14 | 12x18 | ..... | ..... | 3 x 14 | |

Bearings of girders and joists as above.

Both tables are calculated for yellow pine.

The Use of the Steel Square.

The standard steel square has a blade 24 inches long and 2 inches wide, and a tongue from 14 to 18 inches long and $1\frac{1}{2}$ inches wide. The blade is exactly at right angles with the tongue, and the angle formed by them an exact right angle, or square corner. A proper square should have the ordinary divisions of inches, half inches, quarters and eighths, and often sixteenths and thirty-seconds. Another portion of the square is divided into twelfths of an inch; this portion is simply a scale of 12 feet to an inch, used for any purpose, as measuring scale drawings, etc. The diagonal scale on the tongue near the blade, often found on squares, is thus termed from its diagonal lines. However, the proper term is centesimal scale, for the reason that by it a unit may be divided into 100 equal parts, and therefore any number to the 100th part of a unit may be expressed. In this scale A B is one inch; then, if it be required to take off $73\text{--}100$ inches, set one foot of the compasses in the third parallel under 1 at E, extend the other foot to the seventh diagonal in that parallel at G, and the distance between E G is that required, for E F is one inch and F G 73 parts of an inch.

Upon one side of the blade of the square, running parallel with the length, will be found nine lines, divided at intervals of one inch into sections or spaces by cross lines. This is the plank, board and scantling measure. On each side of the cross lines referred to are figures, sometimes on one side of the cross line and often spread over the line, thus, 1 | 4—9 | —. We will suppose we have a board 12 feet long and 6 inches wide. Looking on the outer edge of the blade we find 12; between the fifth and sixth lines, under 12, will be found 12 again; this is the length of the board. Now follow the space along toward the tongue till we come to the cross line under 6 (on the edge of the blade), this being the width of the board; in this space will be found the figure 6 again, which is the answer in board measure, viz., six feet.

On some squares will be found on one side of the blade 9 lines, and crossing these lines diagonally to the right are rows of figures, as seven 1s, seven 2s, seven 3s, etc. This is another style of board measure and gives the feet in a board according to its length and width.

In the center of the tongue will generally be found two parallel lines, half an inch apart, with figures between them; this is termed the Brace Rule. Near the extreme end of the tongue will be found 24-24 and to the right of these 33.95. The 24-24 indicate the two sides of a right-angle-triangle, while the length of the brace is indicated by 33.95. This will explain the use of any of the figures in the brace rule. On the opposite side of the tongue from the brace rule will generally be found the octagon scale, situated between two central parallel lines. This space is divided into intervals and numbered thus; 10, 20, 30, 40, 50, 60. Suppose it becomes necessary to describe an octagon ten inches square; draw a square ten inches each way and bisect the square with a horizontal and perpendicular center line. To find the length of the octagon line, place one point of the compasses on any of the main divisions of the scale and the other leg or point on the tenth subdivision. This

length being measured off on each side of center lines, touching the line of the octagon, will give the points from which to draw the octagonal lines. The size of the octagon must equal the number of spaces taken off from the tongue by the compasses.

Weight of a Cubic Foot of Earth, Stone, Metal, &c.

| <i>Article.</i> | <i>Lbs.</i> | <i>Article.</i> | <i>Lbs.</i> |
|--------------------------|---------------------|---------------------------|-------------------|
| Alcohol..... | 49 | Lead, cast..... | 709 |
| Ash Wood..... | 53 | Lead, rolled..... | 711 |
| Bay Wood..... | 51 | Milk..... | 64 |
| Brass, gun metal..... | 543 | Maple..... | 47 |
| Brandy..... | 58 | Mortar..... | 110 |
| Beer..... | 65 | Mud..... | 102 |
| Blood..... | 66 | Marble, Italian..... | 169 |
| Brick, common..... | 102 | Marble, Vermont..... | 165 |
| Cork..... | 15 | Mahogany..... | 66 |
| Cedar..... | 35 | Oak, Canadian..... | 54 |
| Copper, cast..... | 547 | Oak, live, seasoned..... | 67 |
| Copper, plates..... | 543 | Oak, white, dry..... | 54 |
| Clay..... | 120 | Oil, linseed..... | 59 |
| Coal, Lehigh..... | 56 | Pine, yellow..... | 34 |
| Coal, Lackawanna..... | 50 | Pine, white..... | 34 |
| Cider..... | 64 | Pine, red..... | 37 |
| Chestnut..... | 38 | Pine, well seasoned..... | 30 |
| Ebony..... | 83 | Platina..... | 1,219 |
| Earth, loose..... | 94 | Red Hickory..... | 52 |
| Glass, Window..... | 165 | Silver..... | 625 $\frac{3}{4}$ |
| Gold..... | 1,203 $\frac{2}{3}$ | Steel, plates..... | 487 $\frac{3}{4}$ |
| Hickory, pig nut..... | 49 | Steel, soft..... | 489 |
| Hickory, shell-bark..... | 43 | Stone, common, about..... | 158 |
| Hay, bale..... | 9 | Sand, wet, about..... | 128 |
| Hay, pressed..... | 25 | Spruce..... | 31 |
| Honey..... | 90 | Tin..... | 455 |
| Iron, cast..... | 450 | Tar..... | 63 |
| Iron, plates..... | 481 | Vinegar..... | 67 |
| Iron, wrought bars..... | 486 | Water, salt..... | 64 |
| Ice..... | 57 $\frac{1}{2}$ | Water, rain..... | 62 |
| Lignum Vitæ Wood..... | 83 | Willow..... | 36 |
| Logwood..... | 57 | Zinc, cast..... | 428 |

To Cut a Hole in Hard Steel.—An authority says: Sometimes I have had to make holes in steel that was too hard to cut or file easily. Then I make a chemical mixture that will cut a hole. I mix one ounce of sulphate of copper, a quarter of an ounce of alum, half a tea-spoonful of powdered salt, a gill of vinegar and twenty drops of nitric acid. This will cut a hole in any steel, or, if washed off quickly, it will give a beautiful frosted appearance to the metal.

Cost of Tin Roofing per Square and per Square Foot.

The following table shows the cost per square and per square foot of tin roofing, laid with 14x20 tin, with tin at any price from \$4 to \$10 per box. The first column contains the price per box of tin; the second column shows the cost of tin per square (100 square feet) of surface, and the third column shows the cost of tin per square foot of surface:

FLAT SEAM ROOFING—COST WITH 14x20 TIN.

| Price of Tin per box. | Cost per square of flat roof 14x20 Tin. | Cost per sq. foot. | Price of Tin per box. | Cost per square of flat roof 14x20 Tin. | Cost per sq. foot. |
|-----------------------------|--|-----------------------|-----------------------------|--|-----------------------|
| \$4.25..... | \$2.21..... | .0221 | \$ 8.25..... | \$4.29..... | .0420 |
| 4.50..... | 2.34..... | .0234 | 8.50..... | 4.42..... | .0442 |
| 4.75..... | 2.47..... | .0247 | 8.75..... | 4.55..... | .0455 |
| 5.00..... | 2.60..... | .0260 | 9.00..... | 4.68..... | .0468 |
| 5.25..... | 2.73..... | .0273 | 9.25..... | 4.81..... | .0481 |
| 5.50..... | 2.86..... | .0286 | 9.50..... | 4.94..... | .0494 |
| 5.75..... | 2.99..... | .0299 | 9.75..... | 5.07..... | .0507 |
| 6.00..... | 3.12..... | .0312 | 10.00..... | 5.20..... | .0520 |
| 6.25..... | 3.25..... | .0325 | 10.25..... | 5.33..... | .0533 |
| 6.50..... | 3.38..... | .0338 | 10.50..... | 5.46..... | .0546 |
| 6.75..... | 3.51..... | .0351 | 10.75..... | 5.59..... | .0559 |
| 7.00..... | 3.64..... | .0364 | 11.00..... | 5.72..... | .0572 |
| 7.25..... | 3.77..... | .0377 | 11.25..... | 5.85..... | .0585 |
| 7.50..... | 3.90..... | .0390 | 11.50..... | 5.98..... | .0598 |
| 7.75..... | 4.03..... | .0403 | 11.75..... | 6.11..... | .0611 |
| 8.00..... | 4.16..... | .0416 | 12.00..... | 6.24..... | .0624 |

STANDING SEAM ROOFING—COST WITH 14x20 TIN.

| Price of Tin per box. | Cost per square of stand'g seam roof with 14x20 Tin. | Cost per sq. foot. | Price of Tin per box. | Cost per square of stand'g seam roof with 14x20 Tin. | Cost per sq. foot. |
|-----------------------------|--|-----------------------|-----------------------------|--|-----------------------|
| \$4.25..... | \$2.37..... | .0237 | \$ 7.25..... | \$4.03..... | .0403 |
| 4.50..... | 2.51..... | .0251 | 7.50..... | 4.17..... | .0417 |
| 4.75..... | 2.65..... | .0265 | 7.75..... | 4.31..... | .0431 |
| 5.00..... | 2.79..... | .0279 | 8.00..... | 4.45..... | .0445 |
| 5.25..... | 2.93..... | .0293 | 8.25..... | 4.59..... | .0459 |
| 5.50..... | 3.06..... | .0306 | 8.50..... | 4.73..... | .0473 |
| 5.75..... | 3.20..... | .0320 | 8.75..... | 4.87..... | .0487 |
| 6.00..... | 3.34..... | .0334 | 9.00..... | 5.01..... | .0501 |
| 6.25..... | 3.48..... | .0348 | 9.25..... | 5.15..... | .0515 |
| 6.50..... | 3.62..... | .0362 | 9.50..... | 5.29..... | .0529 |
| 6.75..... | 3.76..... | .0376 | 9.75..... | 5.43..... | .0543 |
| 7.00..... | 3.90..... | .0390 | 10.00..... | 5.57..... | .0557 |

Cost of Tin Roofing per Square—continued.

FLAT SEAM ROOFING—COST WITH 20x28 TIN.

| Price of Tin per box. | Cost per square of flat roof 20x28 Tin. | Cost per sq. foot. | Price of Tin per box. | Cost per square of flat roof 20x28 Tin. | Cost per sq. foot. |
|-----------------------------|--|-----------------------|-----------------------------|--|-----------------------|
| \$8.00..... | \$2.01..... | .0201 | \$16.00..... | \$4.01..... | .0401 |
| 8.50..... | 2.13..... | .0213 | 16.50..... | 4.13..... | .0413 |
| 9.00..... | 2.26..... | .0226 | 17.00..... | 4.26..... | .0426 |
| 9.50..... | 2.38..... | .0238 | 17.50..... | 4.38..... | .0438 |
| 10.00..... | 2.51..... | .0251 | 18.00..... | 4.51..... | .0451 |
| 10.50..... | 2.63..... | .0263 | 18.50..... | 4.63..... | .0463 |
| 11.00..... | 2.76..... | .0276 | 19.00..... | 4.76..... | .0476 |
| 11.50..... | 2.88..... | .0288 | 19.50..... | 4.88..... | .0488 |
| 12.00..... | 3.00..... | .0300 | 20.00..... | 5.01..... | .0501 |
| 12.50..... | 3.13..... | .0313 | 20.50..... | 5.13..... | .0513 |
| 13.00..... | 3.25..... | .0325 | 21.00..... | 5.26..... | .0526 |
| 13.50..... | 3.38..... | .0338 | 21.50..... | 5.38..... | .0538 |
| 14.00..... | 3.50..... | .0350 | 22.00..... | 5.51..... | .0551 |
| 14.50..... | 3.63..... | .0363 | 22.50..... | 5.63..... | .0563 |
| 15.00..... | 3.75..... | .0375 | 23.00..... | 5.76..... | .0576 |
| 15.50..... | 3.88..... | .0388 | | | |

STANDING SEAM ROOFING—COST WITH 20x28 TIN.

| Price of Tin per box. | Cost per square of standi'g seam roof with 20x28 Tin. | Cost per sq. foot. | Price of Tin per box. | Cost per square of standi'g seam roof with 20x28 Tin. | Cost per sq. foot. |
|-----------------------------|---|-----------------------|-----------------------------|---|-----------------------|
| \$8.00..... | \$2.15..... | .0215 | \$16.50..... | \$4.42..... | .0442 |
| 8.50..... | 2.28..... | .0228 | 17.00..... | 4.56..... | .0456 |
| 9.00..... | 2.41..... | .0241 | 17.50..... | 4.69..... | .0469 |
| 9.50..... | 2.55..... | .0255 | 18.00..... | 4.82..... | .0482 |
| 10.00..... | 2.68..... | .0268 | 18.50..... | 4.96..... | .0496 |
| 10.50..... | 2.82..... | .0282 | 19.00..... | 5.09..... | .0509 |
| 11.00..... | 2.95..... | .0295 | 19.50..... | 5.23..... | .0523 |
| 11.50..... | 3.09..... | .0309 | 20.00..... | 5.36..... | .0536 |
| 12.00..... | 3.21..... | .0321 | 20.50..... | 5.49..... | .0549 |
| 12.50..... | 3.35..... | .0335 | 21.00..... | 5.63..... | .0563 |
| 13.00..... | 3.48..... | .0348 | 21.50..... | 5.76..... | .0576 |
| 13.50..... | 3.62..... | .0362 | 22.00..... | 5.90..... | .0590 |
| 14.00..... | 3.75..... | .0375 | 22.50..... | 6.03..... | .0603 |
| 14.50..... | 3.89..... | .0389 | 23.00..... | 6.17..... | .0617 |
| 15.00..... | 4.02..... | .0402 | 23.50..... | 6.30..... | .0630 |
| 15.50..... | 4.15..... | .0415 | 24.00..... | 6.43..... | .0643 |
| 16.00..... | 4.29..... | .0429 | | | |

The Fastest Locomotive Ever Built.

The largest and fastest passenger engine ever built was by the Rhode Island Locomotive Works, for the New York, Providence and Boston Railroad Company. The main driving wheels are six feet in diameter and set but seven feet six inches apart. This arrangement makes her run easily on curves. The cylinders are eighteen inches in diameter, with twenty-four-inch stroke. The boiler is fifty-four inches in diameter at the smoke-stack, with a wagon top. It extends to the very end of the cab, and necessitates the elevation of the engineer's seat to a height far above the fire-door. The fire required three tons of coal before the engine pulled out of the round-house to make her trips, and four tons will be carried on the tender. The tank of the latter will hold 4,000 gallons of water, and the total weight of the engine proper is 93,000 to 95,000 pounds. The weight on the driving wheel will be 66,000 pounds, or 4,800 more than the Connecticut.

She looks to be enormously high as she sets up well in the air, and her short smoke-stack adds to her apparent height. Every thing about her is steel. There is not a particle of brass or bright work about her. She will make the run from Providence to Groton, Conn., a distance of 62.5 miles, including a dead stop at Mystic drawbridge, as required by the statutes of Connecticut, in just 62.5 minutes, pulling at the same time eight cars four of which are Pullmans.

Notable Bridges of the World.

Sublician bridge, at Rome, oldest wooden bridge; seventh century. Twice rebuilt, but ruins only remain.

The bridge at Burton, over the Trent; once the longest bridge in England: 1,545 feet.

The old London bridge was the first stone bridge. Commenced in 1176, completed in 1209.

The bridge of the Holy Trinity, Florence, built in 1569; marble; 322 feet long.

The Bridge of Sighs, at Venice, over which condemned prisoners passed to execution, was built in 1589.

The Rialto, at Venice, a single marble arch, built from designs of Michael Angelo; 98½ feet long; completed 1591.

Coalbrookdale bridge, England, was the first cast-iron bridge. Built over the Severn in 1779.

New London bridge, granite, from designs by L. Rennier. Commenced in 1824, completed in about seven years; cost \$7,291,000.

The Britannia bridge, over the Menai Strait, Wales, 103 feet above high water. Wrought iron, 1,511 feet long, finished in 1850. Cost, \$3,008,000.

The Niagara Suspension bridge was built by Roebling, in 1852-55. Cost, \$400,000; 245 feet above water, 1,268 feet long, estimated 1,200 tons.

Havre de Grace, over the Susquehanna, 3,271 feet long.

Brooklyn Bridge was commenced under the direction of J.

Completed in 1870, and completed in about thirteen years; 3,475 feet long, 135 feet high. Cost nearly \$15,000,000.

The Canti-Lever bridge, 1884, over the Niagara, steel. Length 910 feet; total weight, 3,000 tons; cost was \$222,000.

Rush street bridge, Chicago, Ill., 1884, cost \$132,000; the largest general traffic drawbridge in the world. Will accommodate four teams abreast, and its foot passages are seven feet wide in the clear. Swung by steam power and lighted by electric light.

Cincinnati, over Ohio river (suspension), 2,220 feet long

Trajans, over Danube river (stone), 4,770 feet long

Highbridge, Harlem (stone), 1,460 feet long.

Victoria, Montreal (tubular), 9,144 feet long.

Louisville, over Ohio river (truss), 5,218 feet long

St. Louis, over the Mississippi (steel), 2,045 feet long.

Height of Principal Monuments and Towers.

| PLACES. | NAMES. | FEET. |
|-----------------------|------------------------------------|-------|
| Paris, France..... | Eifel..... | 1,000 |
| Washington, D. C..... | Washington Monument..... | 555 |
| Egypt..... | Pyramid of Cheops..... | 486 |
| Belgium..... | Antwerp Cathedral..... | 476 |
| France..... | Strasbourg Cathedral..... | 474 |
| Egypt..... | Pyramid of Cephrenes..... | 456 |
| Rome..... | St. Peter's Church..... | 448 |
| Germany..... | St. Martin's Church at Landshut... | 411 |
| England..... | St. Paul's Church, London..... | 365 |
| England..... | Salisbury Cathedral..... | 400 |
| Italy..... | Cathedral at Florence..... | 386 |
| Lombardy..... | Cathedral at Cremona..... | 397 |
| Germany..... | Church at Fribourg..... | 386 |
| Spain..... | Cathedral of Seville..... | 360 |
| Lombardy..... | Cathedral of Milan..... | 355 |
| Holland..... | Cathedral of Utrecht..... | 356 |
| Egypt..... | Pyramid of Sakkarah..... | 356 |
| Bavaria..... | Cathedral of Notre Dame, Munich. | 348 |
| Venice..... | St. Mark's Church..... | 328 |
| Italy ... | Assinelli Tower, Bologna..... | 272 |
| New York..... | Trinity Church..... | 284 |
| Hindustan..... | Column at Delhi..... | 262 |
| China..... | Porcelain Tower, Nankin..... | 260 |
| Paris..... | Church of Notre Dame..... | 224 |
| Massachusetts..... | Bunker Hill Monument..... | 221 |
| Italy..... | Leaning Tower of Pisa..... | 179 |
| Baltimore..... | Washington Monument..... | 175 |
| Paris..... | Monument, Place Vendome..... | 153 |
| Italy..... | Trajan's Pillar, Rome..... | 151 |
| Paris..... | Obelisk of Luxor..... | 110 |

ANDERSONVILLE. — The total number of deaths in Andersonville prison was 12,462, about one-third of which took place in the stockade and two-thirds in the hospital. The greatest number imprisoned at any one time was 33,006. Number of escapes, 328.

IMPORTANT EVENTS OF THE LATE CIVIL WAR.

A complete list containing every engagement, great and small, during the Late Civil War, with casualties on both sides so far as known, and the victors in the more important battles; compiled expressly for Conklin's Handy Manual, from the records of the Government for Grand Army reference, and being the only list ever published for the public.

The following abstract may be depended upon as being as nearly reliable as can be compiled. Were it possible to consult the memory of every veteran who took part in our memorable struggle, much more could doubtless be added. Many of the casualties were never recorded in the heat and confusion of battle, but, so far as they appear on the records on either side, they are here inscribed :

NOVEMBER, 1860.

10—Bill to equip and raise 10,000 volunteers introduced in South Carolina Legislature.

18—Georgia Legislature voted \$1,000,000 to arm the State.

20—23—Specie payment suspended by banks in Richmond, Baltimore, Washington, Philadelphia and Trenton, also generally through the South.

DECEMBER, 1860.

3—A John Brown anniversary meeting in Boston broken up by riot,

10—Louisiana Legislature voted \$500,000 to arm the State.

24—Election in Alabama—60,000 majority for secession.

27—Troops ordered out in Charleston.

JANUARY, 1861.

5—Steamer Star of the West sailed from N. Y. with supplies and reinforcements for Fort Sumter, arrived off Charleston on 9th, was fired upon and driven back to sea; returned to N. Y. on 12th with two shot holes in her hull.

7—Senator Toombs, of Georgia, made a secession speech in U. S. Senate.

18—Virginia Legislature appropriated \$1,000,000 for the defense of the State.

21—Jefferson Davis withdrew from U. S. Senate.

31—U. S. Mint at New Orleans seized by State authorities.

FEBRUARY, 1861.

9—Jefferson Davis elected President of C. S. A.

9—U. S. \$25,000,000 loan bill signed by the President.

MARCH, 1861.

4—Abraham Lincoln inaugurated President,

26—Sam Houston, Governor of Texas, deposed for refusal to take an oath of allegiance to the C. S. A.

| DATE. | APRIL, 1861. | CASUALTIES. | | | | | |
|-------|---|-------------|----|-----|---------|-----|-----|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 12 | Bombardment of Fort Sumter. No casualties..... | | | | | | |
| 15 | Evacuation of Ft. Sumter, S.C. | 1 | 3 | | | | |
| 19 | Riots in Baltimore, Md..... | 4 | 20 | | 9 | | |
| | MAY. | | | | | | |
| 2 | N. Y. 69th Regiment arrived in Washington..... | | | | | | |
| 5 | Gen. Butler took possession of Relay House..... | | | | | | |
| 10 | Camp Jackson, Mo..... | | | | | | 639 |
| 10 | Riots in St. Louis, Mo..... | 4 | | | 27 | | |
| 11 | Charleston blockade establs'd | | | | | | |
| 17 | C. S. Cong. authorized issue of \$50,000,000 8% 20-year bonds | | | | | | |
| 29 | Pres't Davis reached Richm'd | | | | | | |
| 31 | Cavalry skirmish at Fairfax C. H. Va..... | | | | | | |
| | JUNE. | | | | | | |
| 1 | Fairfax Court House, Va. . . . | 1 | 4 | | 1 | 14 | |
| 3 | Phillippi, West Virginia..... | | 2 | | | 16 | |
| 10 | Big Bethel, Va..... | 16 | 34 | | 1 | 7 | |
| 11 | *Romney, West Virginia..... | | 1 | | 2 | 1 | |
| 14 | Confederates evacuate and burn Harper's Ferry, Va.... | | | | | | |
| 17 | Vienna, Virginia..... | 5 | 6 | | 6 | | |
| 17 | *Boonville, Mo..... | 2 | 19 | | 15 | 20 | |
| 17 | Edward's Ferry, Md..... | 1 | 4 | | 15 | | |
| 18 | Camp Cole, Mo..... | 15 | 52 | | 4 | 20 | |
| 23 | 48 B. & O. R. R. locomotives, valued at \$400,000, destroyed by the Confederates..... | | | | | | |
| 26 | Patterson Creek, Va..... | 1 | 1 | | 7 | 2 | |
| 27 | Matthias' Point, Va..... | 1 | 4 | | | | |
| 29 | General council of war held at Washington..... | | | | | | |
| | JULY. | | | | | | |
| 2 | Falling Waters, Md..... | 8 | 15 | | 31 | 50 | |
| 5 | *Carthage, or Dry Forks, Mo. | 13 | 31 | | 40 | 125 | 45 |
| 5 | Newport News..... | | 6 | | | 6 | |
| 5 | President Lincoln called for 400,000 men and \$400,000,000 to put down the rebellion... | | | | | | |
| 6 | Middle Creek Fork, W. Va... | 1 | 6 | | 7 | | |
| 7 | Great Falls, Va..... | 2 | | | 12 | | |
| 8 | Laurel Hill, W. Va..... | 2 | 6 | | | | |
| 10 | Monroe Station, Mo..... | 3 | | | 4 | 20 | 75 |
| 11 | *Rich Mt., Va. (Camp lost and | | | | | | |

| DATE. | JULY, 1861. | CASUALTIES. | | | | | |
|-------|---|-------------|------|------|---------|------|-----|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| | 150 prisoners taken.)..... | 11 | 35 | | 60 | 140 | 100 |
| 12 | Barboursville, or Red House, Va..... | 1 | | | 10 | | |
| 12 | Beverly, W. Va..... | | | | | | 600 |
| 14 | Carrick's Ford, W. Va..... | 13 | 40 | | 20 | 10 | 50 |
| 16 | Millsville, or Wentzville, Mo. | 7 | 1 | | 7 | | |
| 17 | Fulton, Mo..... | 1 | 15 | | | | |
| 17 | Scarrytown, W. Va..... | 9 | 38 | | | | |
| 17 | Martinsburg, Mo..... | 1 | 1 | | | | |
| 17 | Bunker Hill, Va..... | | | | 4 | | |
| 18 | Blackburn's Ford, Va..... | 19 | 38 | | 15 | 53 | |
| 19 | Harrisonville and Parkersville, Mo..... | 1 | | | 14 | | |
| 21 | †Bull Run, or Manassas, Va... | 481 | 1011 | 1460 | 269 | 1483 | |
| 22 | Forsyth, Mo..... | | 3 | | 5 | 10 | |
| 24 | Blue Mills, Mo..... | 1 | 12 | | | | |
| 26 | Lane's Prairie, near Rolla, Mo. | | 3 | | 1 | 3 | |
| 27 | Ft. Fillmore, New Mexico.... | | | 420 | | | |
| | AUGUST. | | | | | | |
| 2 | Dug Springs, Mo..... | 4 | 37 | | 40 | 44 | |
| 3 | Messilla, New Mexico..... | 3 | 6 | | 12 | | |
| 5 | Athens, Mo..... | 3 | 8 | | 14 | 14 | |
| 5 | Point of Rocks, Md..... | | | | 3 | 2 | |
| 7 | Hampton, Va..... | | | | 3 | 6 | |
| 8 | *Lovettsville, Va..... | | | | 1 | 5 | |
| 10 | *Wilson's Creek, Mo. (Gen. Lyon killed.)..... | 223 | 721 | 291 | 205 | 800 | 30 |
| 11 | Potosi, Mo..... | 1 | | | 2 | 3 | |
| 14 | Martial law declared at St. Louis, Mo..... | | | | | | |
| 17 | Brunswick, Mo..... | 1 | 7 | | | | |
| 19 | Charleston, or Bird's Pt., Mo. | 1 | 6 | | 40 | | |
| 20 | *Hawk's Nest, W. Va..... | | 3 | | 1 | 3 | |
| 26 | Cross Lanes, or Somerville, W. Va..... | 5 | 40 | 200 | | | |
| 27 | Ball's Cross Roads, Va..... | 1 | 2 | | | | |
| 28-9 | *Ft. Hatteras, N. C..... | 1 | 2 | | 5 | 51 | 715 |
| 29 | Lexington, Mo..... | | | | 8 | | |
| 31 | Munson's Hill, Va..... | 2 | 2 | | | | |
| | SEPTEMBER. | | | | | | |
| 1 | Bennett's Mills, Mo..... | 1 | 8 | | | | |
| 1 | Boone Court House, W. Va... | | 6 | | 30 | | |
| 2 | Dallas, Mo..... | 2 | | | | | |
| 2 | Dry Wood, or Ft. Scott, Mo.. | 4 | 9 | | | | |
| 2 | Behr's Mills, Mo..... | | | | 3 | 5 | |
| 6 | Paducah, Ky., occupied by Union forces..... | | | | | | |

| DATE. | SEPTEMBER, 1861 | CASUALTIES. | | | | | |
|-------|--|-------------|-----|------|---------|-----|-----|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 10 | Carnifex Ferry..... | 16 | 102 | | | | |
| 11 | Lewinsville, Va..... | 6 | 8 | | | | |
| 12 | Black River, near Ironton, Mo. | | | | 5 | | |
| 13 | Cheat Mountain, W. Va..... | 9 | 12 | | | 80 | |
| 13 | Booneville, Mo..... | 1 | 4 | | 12 | 30 | |
| 14 | Confed. privateer Judah destroyed near Pensacola, Fla. | 3 | 15 | | | | |
| 15 | Pritchard's Mills, Va..... | 1 | | | 8 | 75 | |
| 12- | 20. †Lexington, Mo..... | 42 | 108 | 1624 | 25 | 75 | |
| 17 | Morristown, Mo..... | 2 | 6 | | 7 | | |
| 17 | Blue Hills, Mo..... | 11 | 39 | | 10 | 60 | |
| 18 | Banks of New Orleans suspend specie payment..... | | | | | | |
| 18 | Barbourville, W. Va..... | 1 | 1 | | 7 | | |
| 21 | †Ball's Bluff, Va. (Col. Baker killed.)..... | 220 | 266 | 500 | 36 | 264 | 2 |
| 22 | Poppinsville, or Osceola, Mo. | 17 | | | | | |
| 22 | Elliott's Mills, Mo..... | 1 | 5 | | | | |
| 23 | *Romney, or Hanging Rock, W. Va..... | 3 | 50 | | 35 | | |
| 25 | Chapmansville, W. Va..... | 4 | 9 | | 20 | 50 | |
| 26 | Lucas Bend, Ky..... | | | | 4 | | |
| 29 | Munson's Hill | 9 | 25 | | | | |
| | OCTOBER. | | | | | | |
| 3 | Grienbrier, W. Va | 8 | 32 | | 100 | 75 | |
| 4 | Ft. Craig, New Mexico..... | | | | 11 | | |
| 4 | Buffalo Hill, Ky..... | 20 | | | 50 | | |
| 8 | Hillsboro, Ky..... | 3 | 2 | | 11 | 29 | |
| 9 | Santa Rosa, Fla..... | 14 | 29 | | | 350 | |
| 12 | Cameron, Mo..... | 1 | 4 | | 8 | | |
| 12 | Upton Hill, Ky..... | | | | 5 | 3 | |
| 12 | Bayles Crossroads, La..... | | 4 | | | | |
| 13 | Beckwith Farm, Mo..... | 2 | 5 | | 1 | 2 | |
| 13 | West Glaze, Mo..... | | | | 62 | | |
| 15 | Big River Br'ge, nr. Potosi, Mo. | 1 | 6 | 33 | 5 | 4 | |
| 15 | Lime Creek, Mo..... | | | | 63 | 40 | |
| 16 | Bolivar Heights, Mo..... | 4 | 7 | | | | |
| 16 | Warsaw, Mo..... | | | | 3 | | |
| 17- | 21. Fr'd'ckst'n and I'nton, Mo. | 6 | 60 | | | 200 | |
| 19 | Big Hurricane Creek, Mo..... | 2 | 14 | | 14 | | |
| 21 | Bell's Bluff; called Edwards Ferry, or Har'sn's Ln'dg, Va. | 223 | 226 | 445 | 36 | 264 | |
| 22 | Buffalo Mills, Mo..... | | | | 17 | | |
| 23 | West Liberty, Ky..... | | 2 | | 10 | 5 | |
| 23 | Hodgeville, Ky..... | | 3 | | 3 | 5 | |
| 25 | Zagonyi's ch'ge, Spr'gfield, Mo. | 18 | 37 | | 109 | | |
| 26 | Romney, or Mill Creek, W. Va. | 2 | 15 | | 20 | 15 | 50 |

| DATE. | OCTOBER, 1861. | CASUALTIES. | | | | | |
|-------|--|-------------|-----|-----|---------|-----|-----|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 26 | Saratoga, Ky..... | | 4 | | 8 | 17 | |
| 27 | Plattsburg, Mo..... | | | | 8 | | |
| 27 | Spring Hill, Mo..... | | 5 | | | | |
| 29 | Woodbury and Morgant'n, Ky. | | 1 | | | | |
| | NOVEMBER. | | | | | | |
| 1 | Winfield Scott, Com. U. S. army, retired, and Maj.-Gen. Geo. B. McClellan app'nted.. | | | | | | |
| 1 | Renick, Randolph Co., Mo.... | | 14 | | | | |
| 6 | Little Santa Fe, Mo..... | 2 | 6 | | | | |
| 7 | *Belmont, Mo..... | 90 | 173 | 235 | 261 | 427 | 378 |
| 7 | Galveston Harbor, Tex..... | 1 | 8 | | | 3 | |
| 7 | *Port Royal, S. C..... | 8 | 23 | | 11 | 39 | |
| 9 | *Piketown, or Fry Mtn., Ky. (70 wagons, stores, and eq'p'gs.) | | | | 18 | 45 | 200 |
| 10 | Guyandotte, W. Va..... | 4 | 26 | | 3 | 10 | |
| 10 | Gauley Bridge, W. Va..... | 7 | 20 | | | | |
| 11 | Little Blue, Mo..... | 2 | 16 | | | | |
| 11 | Little Blue, Mo..... | 7 | 9 | | | | |
| 12 | Occoguan Creek, Va..... | 3 | 1 | | | | |
| 17 | Cypress Bridge, Ky..... | 10 | 15 | | | | |
| 18 | Palmyra, Mo..... | | | | 3 | 5 | |
| 19 | Wirt Court House, W. Va.... | | | | 1 | 5 | |
| 19 | Eng. packet Trent boarded by Capt. Wilkes, and Mason and Slidell captured. On the 24th inst. they were placed in Ft. Warren, Boston Harbor; released Jan. 1, 1862, on a de- mand of the British govt.... | | | | | | |
| 23 | Ft. Pickens, Pensacola, Fla... | 5 | 7 | | 5 | 23 | |
| 24 | Lancaster, Mo..... | 1 | 2 | | 13 | | |
| 26 | Little Blue, Mo..... | 1 | 1 | | | | |
| 26 | Drainesville, Va..... | | | | 2 | | |
| 29 | Black Walnut Creek, Mo..... | | 15 | | 17 | | |
| | DECEMBER. | | | | | | |
| 3 | Salem, Mo..... | 6 | 10 | | 16 | 20 | |
| 3 | Vienna, Va..... | | | | 1 | | |
| 4 | Anandale, Va..... | 1 | | | 17 | | |
| 4 | Dunksburg, Mo.; citizens re- pulse raiders..... | | | | 7 | 10 | |
| 9 | Congress passed bill authoriz'g exchange of prisoners..... | | | | | | |
| 10 | Shelling of Free Stone Point by Union gunboats..... | | | | | | |
| 11 | Bertrand, Mo..... | | | | | | |
| 13 | Camp Allegheny, or Buffalo Mt., W. Va..... | 20 | 107 | | 20 | 96 | |

| DATE. | DECEMBER, 1861. | CASUALTIES. | | | | | |
|-------|--|-------------|------|-----|---------|------|-----|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 17 | Rowlett's Station, Ky..... | 10 | 22 | | 33 | 50 | |
| 18 | *Milford, Blackwater, Mo..... | 2 | 8 | | | | |
| 20 | Drainsville, Va..... | 7 | 61 | | | 43 | |
| 21 | Hudson, Mo..... | | 5 | | 10 | | |
| 22 | Wadesburg, Mo..... | | 2 | | | | |
| 28 | Sacramento, Ky..... | 1 | 8 | | 30 | | |
| 28 | Mt. Zion, Mo..... | 5 | 63 | | 25 | 150 | |
| 30 | Banks of New York, Philadel- phia, Albany, and Boston sus- pend specie payment..... | | | | | | |
| | JANUARY, 1862. | | | | | | |
| 1 | Port Royal, S. C..... | 1 | 10 | | | | |
| 4 | Huntersville, Va..... | | 1 | | 1 | 7 | |
| 4 | Near Bath, Va..... | 2 | 2 | | | 30 | |
| 4 | Calhoun, Mo..... | | 10 | | | 30 | |
| 7 | Blue Gap, near Romney, Va.. | | | | 15 | | |
| 7 | Jennie's Creek, Ky..... | 3 | 1 | | 6 | 14 | |
| 8 | Charleston, Mo..... | 8 | 16 | | | | |
| 8 | Dry Forks, W. Va..... | | 6 | | 6 | | |
| 8 | Silver Creek, Mo..... | 5 | 6 | | | 80 | |
| 9 | Columbus, Mo..... | 5 | | | | | |
| 10 | Middle Creek, Ky..... | 2 | 25 | | 40 | | |
| 19- | 20. *Mill Springs, Ky. (Gen. Zolicoffer killed)..... | 38 | 194 | | 100 | 160 | |
| 22 | Knob Noster, Mo..... | 1 | | | | | |
| 29 | Occogan Bridge, Mo..... | 1 | 4 | | 10 | | |
| | FEBRUARY. | | | | | | |
| 1 | Bowling Green, Ky..... | 3 | 2 | | | | |
| 6 | *Fort Henry, Tenn..... | | 40 | | 5 | 11 | |
| 8 | Linn Creek, Va..... | 1 | 1 | | 8 | 7 | |
| 8 | *Roanoke Island, N. C. (Sur- render of Ft. Henry, Tenn., to Federal army)..... | 35 | 200 | | 16 | 39 | 250 |
| 10 | Elizabeth City, N. C..... | 3 | | | | | |
| 13 | Blooming Gap, Va..... | 2 | 5 | | 13 | | |
| 14 | Flat Lick Fords, Ky..... | | | | 4 | 4 | |
| 14- | 15, 16. *Ft. Donnelson, Tenn. (6 forts, 65 guns, and 17,500 small arms captured, and 13,829 Conf. w. and m.)..... | 446 | 1735 | 150 | 231 | 1007 | |
| 17 | Pea Ridge, Mo..... | 5 | 9 | | | | |
| 18 | Independence, Mo..... | 1 | 3 | | 4 | 5 | |
| 21 | Ft. Craig, New Mexico..... | 62 | 140 | | | 150 | |
| 24 | Mason's Neck, Va..... | 2 | 1 | | | | |
| 26 | Keytersville, Mo..... | 2 | 1 | | 1 | | |
| | MARCH. | | | | | | |
| 2 | Pittsburg Landing, Tenn..... | 5 | 5 | | 20 | 200 | |

| DATE. | MARCH, 1862. | CASUALTIES. | | | | | |
|--------|--|-------------|------|------|---------|------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 3 | New Madrid, Mo..... | 1 | 3 | | | | |
| 5 | Occoguan, Va | 2 | 2 | | | | |
| 6- | 7, 8. *Pea Ridge, Ark..... | 203 | 972 | 174 | 1100 | 2500 | 1608 |
| 7 | Fox Creek, Mo..... | | 5 | | | | |
| 8 | Near Nashville, Tenn..... | 1 | 2 | | 4 | | |
| 9 | Mountain Grove, Mo..... | 10 | 2 | | | | |
| 9 | Hampton Roads, Va..... | 261 | 108 | | 7 | 17 | |
| 10 | Burke's Station, Va..... | 1 | | | 3 | 5 | |
| 10 | Jacksb'o, Big Creek Gap, Tenn. | | 2 | | 2 | 4 | |
| 11 | Pariś, Tenn..... | 5 | 5 | | | 10 | |
| 12 | Lexington, Mo..... | 1 | 1 | | 9 | 3 | |
| 13 | Near Lebanon, Mo..... | | | | 13 | 5 | |
| 13 | New Madrid, Mo..... | | 50 | | | 100 | |
| 14 | *Newberne, N. C..... | 91 | 466 | | 64 | 106 | 415 |
| 16 | Black Jack Forest, Tenn..... | | 4 | | | | |
| 18 | Salem, or Spring River, Ark... | 5 | 10 | | 100 | | |
| 21 | Mosquito Inlet, Fla..... | 8 | 8 | | | | |
| 22 | Independence, Mo..... | 1 | 2 | | 7 | | |
| 23 | Carthage, Mo..... | | 1 | | | | |
| 23 | *Winchester, Va. (Gens. Mc- Intosh, McCulloch and Slack killed)..... | 103 | 440 | 24 | 80 | 342 | 261 |
| 26 | Warrensburg, Mo..... | 1 | 22 | | 9 | 17 | |
| 26 | Humonsville, Mo..... | | 5 | | | 15 | |
| 26- | 27, 28. Near Santa Fe, N. M. | 32 | 75 | 35 | 36 | 60 | 99 |
| 28 | Warrensburg, Mo..... | 3 | 1 | | 15 | | |
| APRIL. | | | | | | | |
| 2 | Putnam's Ferry, Mo..... | | | | 3 | | |
| 4 | Great Bethel, Va..... | 4 | 10 | | | | |
| 4 | Crump's Landing, Tenn..... | | 2 | | | 20 | |
| 6-7 | *Shiloh, or Pittsb'g Ld'g, Tenn. | 1735 | 7882 | 3950 | 1728 | 8012 | 955 |
| 8 | *Island No. 10, Tenn. (6 forts captured)..... | | | | 17 | | 6000 |
| 8 | Near Corinth, Miss..... | | | | 15 | 25 | 208 |
| 9 | Owens River, Cal..... | 1 | 2 | | | | |
| 10 | *Ft. Pulaski, Ga..... | 1 | | | | 4 | 360 |
| 11 | Huntsville, Ala..... | | | | | | 200 |
| 11 | Yorktown, Va..... | 2 | 8 | | | | |
| 12 | Little Blue River, Mo..... | | | | 5 | | |
| 12 | Monterey, Va..... | | 3 | | | | |
| 14 | Pollocksville, N. C..... | | | | | 7 | |
| 14 | Diamond Grove, Mo..... | | 1 | | | | |
| 14 | Walkersville, Mo..... | 2 | 3 | | | | |
| 14 | Monta Vallo, Mo..... | 2 | 6 | | 2 | 10 | |
| 15 | Pechach's Pass, Ariz..... | 3 | 3 | | | | |
| 16 | Savannah, Tenn..... | | | | 5 | 65 | |
| 16 | Wilmington Island, Ga..... | 10 | 35 | | 5 | 7 | |

| DATE. | APRIL, 1862. | CASUALTIES. | | | | | |
|-------|--|-------------|------|-----|---------|-----|-----|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 16 | Lee's Mills, Va..... | 35 | 129 | | 20 | 75 | 50 |
| 17 | Holly River, W. Va..... | | 3 | | 2 | | |
| 18 | Falmouth, Va..... | 5 | 16 | | | | 19 |
| 18 | Edisto Island, S. C..... | | 3 | | | | |
| 18 | 28. Fts. Jackson and St. Phillip and the capture of New Or- leans, La..... | 36 | 193 | | 185 | 197 | 400 |
| 19 | Talbot's Ferry, Ark..... | 1 | | | 3 | | |
| 19 | Camden. N. C..... | 12 | 98 | | 6 | 19 | |
| 23 | Grass Lick, W. Va..... | 3 | | | | | |
| 25 | Ft. Macon, N. C..... | 1 | 11 | | 7 | 18 | 450 |
| 25 | Turnback Creek, Mo..... | 1 | | | | | |
| 26 | Neosha, Mo..... | 3 | 3 | | | 30 | 62 |
| 26 | Com. Farragut demanded the surrender of New Orleans.. | | | | | | |
| 26 | In front of Yorktown, Va..... | 3 | 16 | | | | |
| 27 | Norton's Mills, N. C..... | 1 | 6 | | | 3 | |
| 28 | Paint Rock R.R. Bridge, Tenn. | 7 | | | | | |
| 28 | Cumberland Mountain, Tenn. | | | | | | |
| 28 | Monterey, Tenn..... | 1 | 3 | | 5 | | |
| 29 | Bridgeport, Ala..... | | | | 72 | | 350 |
| | MAY. | | | | | | |
| | New Orleans capt'd by Union soldiers..... | | | | | | |
| 1 | Clarke's Hollow, West Va.... | 1 | 21 | | | | |
| 3 | Farmington, Miss..... | 2 | 12 | | 30 | | |
| 4 | Licking, Mo..... | 1 | 2 | | | | |
| 4 | Cheese Cake Church, Va..... | | | | | | |
| 5 | Lebanon, Tenn..... | 6 | 25 | | | | 65 |
| 1 | Lock Ridge Mills, Ky..... | 4 | 16 | 68 | | | |
| 3 | * Williamsburg, Va..... | 450 | 1400 | 372 | 1000 | | |
| 7 | West Point, Va..... | 40 | 104 | 41 | | | |
| 7 | Somerville Heights, Va..... | 2 | 7 | 24 | | | |
| 8 | McDowell or Bull Pasture, Va. | 28 | 225 | | 100 | 200 | |
| 9 | Corinth, Miss..... | 1 | 4 | | 30 | | |
| 9 | Elk Station, Ala..... | 5 | | 43 | 16 | | |
| 9 | New Kent C. H., Va..... | 4 | 3 | | 10 | 14 | |
| 10 | Port Pillow, Tenn..... | | 3 | | 2 | 1 | |
| 10 | Surrender of Norfolk, Va.... | | | | | | |
| 10 | Gen. Butler captured \$800,000 in Gold at New Orleans.... | | | | | | |
| 11 | Bloomfield, Mo..... | | | 1 | | | |
| 13 | Monterey, Tenn..... | | 2 | | 2 | 3 | |
| 13 | Linden, Va..... | 1 | 3 | 14 | | | |
| 15 | Fort Darling, James River, Va. | 12 | 14 | | 7 | 8 | |
| 15 | Clark Bluff, Mo..... | 1 | 3 | | | | |
| 15 | Butler, Bates Co., Mo..... | 3 | 1 | | | | |

| DATE. | MAY, 1862. | CASUALTIES. | | | | | |
|-------|--|-------------|------|------|---------|------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 15-8 | Princeton, West Va..... | 30 | 70 | | 2 | 14 | |
| 17 | Corinth, Miss..... | 10 | 39 | | 12 | | |
| 19 | Searcy Landing, Ark..... | 18 | 17 | | 150 | | |
| 19 | Clinton, N. C..... | | 5 | | 9 | | |
| 21 | Phillips Creek, Miss..... | | 3 | | | | |
| 22 | Florida, Mo..... | | 2 | | | | |
| 22 | Near Newberne, N. C..... | 3 | 8 | | | | |
| 23 | Louisburg, Va..... | 14 | 60 | | 40 | 60 | 100 |
| 23 | Front Royal, Va..... | 32 | 122 | 750 | | | |
| 23 | Backton Station, Va..... | 2 | 6 | | 12 | | |
| 23 | Ft. Craig, New Mexico.... | | 3 | | | | |
| 24 | New Bridge, Va..... | 1 | 10 | | 60 | | 27 |
| 24 | Chickahominy, Va..... | 2 | 4 | | | | |
| 25 | †Winchester, Va. (Fed. retr'd.) | 38 | 155 | 711 | | | |
| 27 | Hanover Court House, Va.... | 53 | 344 | | 200 | | 730 |
| 27 | Big Indian Creek, Ark..... | | 3 | | 5 | 25 | |
| 27 | Osceola, Mo..... | 3 | 2 | | | | |
| 28 | Wardensville, Va..... | | | | 2 | 3 | |
| 29 | Pocotaligo, S. C..... | 2 | 9 | | | | |
| 30 | Booneville, Miss..... | | | | | | 2000 |
| 30 | Front Royal, Va..... | 5 | 8 | | | | 156 |
| 30 | *Corinth, Miss..... | | | | | | |
| 31 | Neosho, Mo..... | 2 | 3 | | | | |
| 31 | Near Washington, N. C..... | | 1 | | 3 | 2 | |
| 31 | And | | | | | | |
| JUNE. | | | | | | | |
| 1 | †Seven Pines and Fair Oaks, Va..... | 800 | 3627 | 1222 | 2800 | 3807 | 1300 |
| 2 | Strasburg, Va..... | | 2 | | | | |
| 3 | Legare's Point, S. C..... | | 5 | | | | |
| 4 | Jasper, Tenn..... | 2 | 7 | | 20 | 20 | |
| 4 | Blackand, Miss..... | 5 | 14 | | | | |
| 5 | Tranter's Creek, N. C..... | 7 | 11 | | | | |
| 6 | Memphis, Tenn. (Memphis surrenders)..... | | | | 80 | 80 | 100 |
| 6 | Harrisonburg, Va..... | | | 63 | 17 | 50 | |
| 8 | †Cross Keys, Va..... | 125 | 500 | | 42 | 230 | |
| 9 | †Port Republic, Va..... | 67 | 364 | 574 | 88 | 335 | 34 |
| 10 | James Island, S. C..... | 3 | 13 | | 17 | 30 | |
| 11 | Monterey, Ky..... | 2 | | | | | 100 |
| 12 | Waddell's Farm, Ark..... | 12 | | | 28 | | |
| 13 | Old Church, Va..... | | | | 1 | | |
| 13 | James Island, S. C..... | 3 | 19 | | 19 | 6 | |
| 14 | Turnstall Station, Va..... | 4 | 8 | | | | |
| 16 | Ft. Johnson, James Isl'd, S. C. | 85 | 472 | 128 | 51 | 144 | |
| 17 | St. Charles, Ark..... | 105 | 30 | | | 155 | |
| 17 | Warrensburg, Mo..... | 2 | 2 | | | | |

| DATE. | JUNE, 1862. | CASUALTIES. | | | | | |
|-------|---------------------------------|-------------|---------|------|---------|---------|-----|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 17 | Smithville, Ark..... | 2 | 4 | | | 4 | 15 |
| 18 | Williamsburg Road, Va..... | 7 | 57 | | 5 | 9 | |
| 21 | Battle Creek, Tenn..... | 4 | 3 | | | | |
| 22 | Raceland, La..... | 3 | 8 | | | | |
| 23 | Raytown, Mo..... | 1 | 1 | | | | |
| 25 | Oak Grove, Va..... | 51 | 401 | 64 | 65 | 495 | 18 |
| 25 | Germantown, Tenn..... | 10 | | | | | |
| 25 | Little Red River, Ark..... | | 2 | | | | |
| 26 | *Chickahominy, Va..... | 80 | 150 | | 1000 | | |
| 27 | †Gaines Mills, Va..... | 7500 | k w & m | | 7500 | k w & m | |
| 26- | 29. U. S. fleet under Com. Far- | | | | | | |
| | ragut; no casualties rec'd'd. | | | | | | |
| 26 | to July 1. *Malvern Hill, Va. | 1000 | k w & m | | 5000 | k w & m | |
| | President Lincoln calls for | | | | | | |
| | 600,000 men. The seven days' | | | | | | |
| | retreat of the Army of the | | | | | | |
| | Potomac under Gen. Geo. B. | | | | | | |
| | McClellan; total casualties | | | | | | |
| | in the various engagements | | | | | | |
| | were: 1st corps..... | 253 | 1240 | 1581 | | | |
| | 2d corps..... | 187 | 1076 | 848 | | | |
| | 3d corps..... | 189 | 1051 | 833 | | | |
| | 4th corps..... | 69 | 507 | 201 | | | |
| | 5th corps..... | 620 | 2460 | 1198 | | | |
| | 6th corps..... | 245 | 1313 | 1179 | | | |
| | Engineer's corps..... | | 2 | 21 | | | |
| | Total..... | 1582 | 7709 | 5958 | | | |
| | Total casualties in Confed. | | | | | | |
| | divisions were 14,011 w.... | | | | 2820 | | 752 |
| | JULY. | | | | | | |
| 1 | Booneville, Miss..... | 45 | | | 17 | 65 | |
| 1 | Morning Sun, Texas..... | | 4 | | 11 | 26 | |
| 3 | Elvington Heights, Va..... | 8 | 32 | | 100 | | |
| 6 | Grand Prairie, Ark..... | 1 | 21 | | 84 | | |
| 7 | Bayou Cache, La..... | 7 | 57 | | 110 | 200 | |
| 8 | Black River, Mo..... | 1 | 3 | | | | |
| 9 | Hamilton, N. C..... | 1 | 20 | | | | |
| 9 | Aberdeen, Ark..... | | | | | | |
| 9 | Thompkinsville, Ky..... | 4 | 6 | | 10 | | |
| 11 | Williamsburg, Va..... | | | | 3 | | |
| 11 | Pleasant Hill, Mo..... | 10 | 19 | | 6 | 5 | |
| 12 | Lebanon, Ky. (Morgan's raid). | 2 | | 65 | | | |
| 12 | Near Culpepper, Va..... | | | | 1 | 5 | |
| 13 | Murfreesboro, Tenn..... | 33 | 62 | 800 | 50 | 100 | |
| 14 | Batesville, Ark..... | 1 | 4 | | | | |
| 15 | Apache Pass, Ariz..... | | 1 | | | | |
| 15 | Fayetteville, Ark..... | | | | | | 152 |

| DATE. | JULY, 1862. | CASUALTIES. | | | | | |
|-------|---|-------------|-----|-----|---------|------|-----|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 15 | Decatur, Tenn..... | | 4 | | | | |
| 17 | Cynthiana, Ky. Morgan's raid. Postage stamps made legal tender..... | 17 | 34 | | 8 | 29 | |
| 18 | Memphis, Mo..... | 13 | 35 | | 23 | | |
| 18 | Guerrilla campaign in Mo. to Sept. 20. (Morgan's guer- rillas scattered)..... | 77 | 156 | 347 | 500 | 1800 | 560 |
| 23 | Florida, Mo..... | | 22 | | 3 | | |
| 23 | Columbus, Mo..... | | 2 | | | | |
| 24 | Trinity, Ala..... | 2 | 11 | | 12 | 30 | |
| 24 | Near Florida, Mo..... | 1 | 2 | | 1 | 12 | |
| 25 | Courtland Bridge, Mo..... | | | 100 | | | |
| 26 | Young's Crossroads, N. C..... | | 7 | | 4 | 13 | |
| 28 | Moore's Mills, Mo..... | 19 | 21 | | 30 | 100 | |
| 29 | Brownsville, Tenn..... | 4 | 6 | | 4 | 6 | |
| 30 | Paris, Ky..... | | | | 27 | 39 | |
| 31 | Coggin's Point, Va..... | 10 | 15 | | 10 | 6 | |
| | AUGUST. | | | | | | |
| 1 | Newark, Mo..... | 4 | 4 | 60 | 73 | | |
| 2 | Orange Court House, Va..... | 4 | 12 | | 12 | | 34 |
| 2 | Clear Creek, Mo..... | 5 | 14 | | 11 | | |
| 3 | Languelle Ferry, Ark..... | 17 | 38 | | | | |
| 4 | President Lincoln ordered 300- 000 men to be drafted..... | | | | | | |
| 4 | Sparta, Tenn..... | | | | | 10 | 23 |
| 5 | *Baton Rouge, La. (Gen. Will- iams killed)..... | 82 | 255 | 34 | 84 | 316 | 70 |
| 5 | Malvern Hill, Va..... | 3 | 11 | | | | 100 |
| 6 | Kirksville, Mo..... | 28 | 60 | | 128 | 200 | |
| 6 | Thornburg, Va..... | 2 | 12 | 72 | | | |
| 6 | Tazewell, Tenn..... | 3 | 23 | 50 | 9 | 40 | |
| 7 | Trenton, Tenn..... | | | | 30 | 20 | |
| 9 | Stockton, Mo..... | | | | 13 | 36 | |
| 9 | *Cedar Mountain, Va. (Conf. repulsed)..... | 450 | 660 | 290 | 229 | 1047 | 31 |
| 9 | Nucces River, Tex..... | 40 | | | 8 | 14 | |
| 10 | to 13. Grand River skirmishes, Mo. Total..... | 100 | | | | | |
| 11 | Independence, Mo..... | 14 | 18 | 312 | | | |
| 12 | Gallatin, Tenn..... | 30 | 50 | 200 | 6 | 18 | |
| 13 | Clarendon, Ark..... | | | | | | 700 |
| 15 | Merriweather's Ferry, Tenn.. | 3 | 6 | | 20 | | |
| 16 | Lone Jack, Mo..... | 60 | 100 | | 110 | | |
| 19 | Clarksville, Tenn..... | | | 200 | | | |
| 20 | Edgefield Junction, Tenn..... | 8 | 18 | | | | |
| 22 | †Gallatin, Tenn. (Gen. John- | | | | | | |

| DATE. | AUGUST, 1862. | CASUALTIES. | | | | | |
|-------|---|-------------|------|------|---------|---------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| | son captured)..... | 64 | 100 | 200 | 110 | k | & w |
| 23 | Big Hill, Madison Co., Ky.... | 10 | 40 | | 25 | | |
| 23 | Waterloo Bridge, Va..... | | | | 37 | 94 | |
| 23 | Pope's campaign in Va. to Sept. 1. Army of Virginia.. | 7000 | | | 1500 | | 8000 |
| 25-6 | Ft. Donnelson, Tenn..... | 31 | | | 30 | | |
| 27 | *Bull Run and Fettle Run, Va. | 300 | | | 300 | | 1000 |
| 28-9 | *Groverton and Gainesville, Va. Army of Potomac losses in all corps..... | 7000 | | | 12000 | k w & m | |
| 29 | Manchester, Tenn..... | | | | 100 | | |
| 30 | †Second Battle of Bull Run, or Manassas, Va..... | 800 | 4000 | 3000 | 700 | 3000 | |
| 30 | Bolivar, Tenn..... | 5 | 18 | 64 | 100 | | |
| 30 | †Richmond, Ky..... | 200 | 700 | 4000 | 250 | 500 | |
| 31 | Medow Station, Tenn..... | 3 | 13 | 43 | | | |
| | SEPTEMBER. | | | | | | |
| 1 | Britton's Lane, Tenn..... | 5 | 51 | 52 | 179 | 100 | |
| 1 | †Chantilly, Va. McDowell's corps, Hooker and Kearney's Div. of 3d corps, and Reno's corps. (Gens. Kearney and Stearns, Federals, killed.... | 1300 | | | 800 | | |
| 6 | Washington, N. C..... | 8 | 36 | | 30 | 100 | |
| 9 | Columbus, Tenn..... | | | | 18 | 45 | |
| 10 | Cold Water, Miss..... | | | | 4 | 80 | |
| 10 | Fayetteville, W. Va..... | 13 | 80 | | | | |
| 12- | 15. Harper's Ferry, Va. 11583 Union prisoners taken..... | 80 | 120 | | 500 | | |
| 14 | *South Mountain, Md. (Gen. Reno killed)..... | 443 | 1800 | | 900 | 2344 | 1500 |
| 14-6 | †Mumfordsville, Ky..... | 50 | | 3566 | 715 | | |
| 15 | Harper's Ferry surrenders 11, 500 Federals..... | | | | | 16399 | |
| 17 | *Antietam, or Sharpsburg, Md. Total loss in all corps..... | 2010 | 9416 | 1043 | 3500 | | 6000 |
| 19- | 20. *Iuka, Miss..... | 144 | 598 | | 263 | 692 | 501 |
| 20 | Blackford's Ford, Va..... | 92 | 131 | 103 | 33 | 231 | |
| 22 | Emancipation Proclamation is- sued..... | | | | | | |
| 30 | Newtonia, Mo..... | 50 | 80 | 115 | 220 | 280 | |
| | OCTOBER. | | | | | | |
| 1 | Shepherdstown, Va..... | | 12 | | 60 | | |
| 3-4 | Corinth, Miss..... | 315 | 1812 | 232 | 1423 | 5692 | 2248 |
| 5 | Metamora, Miss..... | 500 | | | 400 | | |
| 7 | La Vergne, Tenn..... | 3 | 9 | | 80 | | 173 |
| 8 | *Perryville, Ky..... | 916 | 2943 | 489 | 2500 | | |

| DATE. | OCTOBER, 1862. | CASUALTIES. | | | | | |
|-------|---|-------------|------|------|---------|------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 10 | Harrodsburg, Ky..... | | | | | | 1600 |
| 17 | Lexington, Ky..... | 4 | 24 | 350 | | | |
| 18 | Morgan, the raider, dashed into Lexington and captured 125 prisoners..... | | | | | | |
| 22 | Maysville, Ark..... | | | | | | |
| 22 | Pocotaligo, S. C..... | 43 | 258 | | 14 | 102 | |
| | NOVEMBER. | | | | | | |
| 1 | Artillery fight at Philmont, Va. | | | | | | |
| 3 | Reconnoissance at the base of Blue Ridge Mts. Confederates literally driven into the river and drowned by scores. | | | | | | |
| 3 | Harrisonville, Mo..... | 10 | 3 | | 6 | 20 | |
| 4 | Galveston, Texas, surrendered | | | | | | |
| 5 | Nashville, Tenn. | | 26 | | | | 23 |
| 6 | Garrettsburg, Ky..... | | | | 17 | 85 | |
| 7 | Big Beaver Creek, Mo..... | | | 300 | | | |
| 8 | Hudsonville, Miss..... | | | | 16 | | 185 |
| 21 | Gen. Sumner demands surrender of Fredericksburg, Va... | | | | | | |
| 24 | Beaver Creek, Mo..... | 6 | 10 | | 5 | 20 | |
| 28 | Crane Hill, Boonesboro, Ark.. | 4 | 36 | | 75 | 300 | |
| 28 | Hartwood Church, Va. | 4 | 9 | 200 | | | |
| | DECEMBER. | | | | | | |
| 4 | Winchester, Va., captured by Union soldiers | | | | | | |
| 5 | Coffeeville, Miss..... | 10 | 54 | | 7 | 43 | |
| 7 | Fayetteville, Ark..... | 167 | 798 | 183 | 300 | 1200 | |
| 7 | Hartsville, Tenn..... | 55 | | 1800 | 21 | 114 | |
| 9 | Dobbin's Ferry, Tenn..... | 5 | 48 | | | | |
| 12-8 | Goldsboro expedition, N. C... | 90 | 478 | | 71 | 268 | 400 |
| 13 | † Fredericksburg, Va., Army of the Potomac..... | 1180 | 9028 | 2145 | 579 | 3870 | 127 |
| 14 | Kingston, N. C..... | 40 | 120 | | 50 | 75 | 400 |
| 18 | Lexington, Tenn.... | 7 | 10 | 124 | 7 | 28 | |
| 20 | Holly Springs, Miss..... | | | 1000 | | | |
| 21 | Davis Mills, Miss..... | | 3 | | 22 | 50 | |
| 28-9 | † Chicaw Bayou, Vicksburg. | 191 | 982 | 756 | | 207 | |
| 30 | Red Mound, Tenn..... | 23 | 139 | 58 | 50 | 150 | 300 |
| 31 | To | | | | | | |
| | JANUARY, 1863. | | | | | | |
| | * Murfreesboro, or Stone River, Tenn., Army of Cumberland. | 1533 | 7245 | 2800 | 1456 | 0 | |
| 1 | Galveston, Tex. | 600 | | | 50 | | |
| 8 | Springfield, Mo..... | 14 | 144 | | 4 | 200 | |
| 11 | * Ft. Hindman, Ark..... | 129 | 831 | | 100 | 400 | 5000 |

| DATE. | FEBRUARY, 1863. | CASUALTIES. | | | | | |
|-------|--|-------------|---------|------|---------|------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 3 | Ft. Donnelson, Tenn..... | 16 | 60 | 50 | 140 | 400 | 130 |
| | MARCH. | | | | | | |
| 5 | Spring Hill and Unionville, Tenn..... | 100 | 300 | 1306 | 150 | 450 | |
| 14 | Port Hudson, La..... | | 65 | | | | |
| 17 | Kelly's Ford, Va..... | 9 | 35 | | 11 | 88 | |
| 20 | Vaught's Hill, Tenn..... | 7 | 48 | | 63 | 300 | |
| 30 | Dutton's Hill, or Somerset, Ky. | 10 | 25 | | 200 | | |
| | APRIL. | | | | | | |
| 7 | Bombardment of Ft. Sumter, by South Atlantic squadron. | 2 | 20 | | 4 | 10 | |
| 10 | Franklin and Harpeth River, Tenn..... | 100 | | | 19 | 35 | 85 |
| 12-4 | Irish Bend, or Indian Ridge, La..... | 350 | | | | 400 | 2000 |
| 16 | Siege of Suffolk, Va..... | 44 | 202 | | 500 | | 400 |
| 26 | Cape Girardeau, Mo..... | 6 | 6 | | 60 | 275 | |
| 27 | Streight's raid from Tusculumbia, Ala., to Rome, Ga..... | 12 | 69 | 1466 | | | |
| 29 | Fairmount, W. Va..... | 1 | 6 | | 100 | | |
| 30 | Spottsylvania Court House, Va | 58 | | | | | |
| | MAY | | | | | | |
| 1 | Port Gibson, Miss..... | 130 | 718 | | 1150 | | 500 |
| 1 | La Grange, Ark..... | 2000 | k w & m | | | | |
| I-4 | *Chancellorsville, Va..... | 1512 | 9518 | 5000 | 1581 | 8700 | 2000 |
| 2 | †Fredericksburg, Va..... | 2000 | | | | | |
| 11 | Horse Shoe Bend, Ky..... | 10 | 20 | 40 | 100 | | |
| 12 | Raymond, Miss..... | 60 | 341 | | 909 | | |
| 14 | *Jackson, Miss..... | 40 | 240 | | 450 | | |
| 16 | *Champion Hills, Miss. (20 cannon captured)..... | 426 | 1842 | 189 | 2500 | | 1800 |
| 17 | *Big Black River, Miss. (17 cannon captured)..... | 29 | 242 | | 600 | | 2500 |
| 18 | to 22. †Siege of Vicksburg, by Gen. Grant and Porter's gunboat fleet. (31,277 Con. killed, wounded and miss'ng | 545 | 3688 | 303 | | | |
| 27 | to July 9. Siege of Port Hudson, La..... | 500 | 2500 | | 100 | 700 | 6408 |
| | JUNE. | | | | | | |
| 4 | Franklin, Tenn..... | 25 | | | 200 | | |
| 6-8 | *Milliken's Bend, La. Colored regm'ts. No quarters shown. | 154 | 223 | 115 | 125 | 400 | 200 |
| 9 | Monticello and Rocky Gap, Ky | 4 | 26 | | 20 | 80 | |
| 9 | Beverly Ford and Brandy Station, Va. Cavalry fight..... | 500 | | | 700 | | |
| 13-5 | †Winchester, Va..... | 3000 | | | 850 | | |

| DATE. | JUNE, 1863. | CASUALTIES. | | | | | |
|-------|--|-------------|-------|------|---------|-------|-------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 14 | Martinsburg, Va..... | | | 200 | 1 | 2 | |
| 17 | Aldie, Va. Kilpatrick's cavalry | 24 | 41 | 89 | | 100 | |
| 20-1 | La Forche Crossing, La..... | 8 | 40 | | 53 | 150 | |
| 21 | Upperville, Va..... | | 94 | | 20 | 100 | 60 |
| 23 | Brashearn City, La..... | 46 | 40 | 300 | 3 | 18 | |
| 23 | to 30. *Rosenkranz's campaign from Murfreesboro to Tal- | | | | | | |
| | lahoma, Tenn..... | 85 | 462 | | 1634 | | |
| 28 | Donaldsonville, La..... | | | | 39 | 112 | 150 |
| 30 | Hanover, Penn..... | 12 | 43 | | | 75 | 60 |
| | JULY. | | | | | | |
| 1-3 | *Gettysburg, Pa., Army of the Potomac. Decisive battle of the war..... | 2834 | 13709 | 6643 | 3500 | 14500 | 13621 |
| 1- | 26. Morgan's raid into Ken- | 22 | 80 | 790 | 86 | 385 | 3000 |
| 4 | tucky, Indiana and Ohio.... | 57 | 117 | 32 | 173 | 687 | 776 |
| 4 | *Helena, Ark..... | | | | | | |
| 4 | Vicksburg surrenders | | | | | | |
| 4-5 | *Bolton and Birdway Ferry, Miss. (rear guard of John- | | | | | | |
| | ston's army)..... | | | | | | 2000 |
| 5 | Smithburg, Md..... | 30 | | | 30 | | 100 |
| 5 | Lebanon, Ly..... | 9 | 15 | 400 | 3 | 6 | |
| 8 | *Port Hudson surrenders..... | | | | | | 5500 |
| 9- | 16. †Jackson, Miss..... | 100 | 800 | 100 | 71 | 504 | 764 |
| 10- | Sept. 6. Siege of Fort Wagner, Morris Island, S. C..... | 1757 | | | 501 | | |
| 13 | Yazoo, City, Miss..... | | | | | | 250 |
| 13 | Donaldsonville, La..... | 450 | | | | | |
| 13- | 15. Draft riots in N. Y. City.. | 1000 | | | | | |
| 14 | Falling Waters, Md..... | 29 | 36 | | 125 | | 1500 |
| 14 | *Bristow Station, Va..... | 51 | 329 | | 1200 | | 800 |
| 16 | Sheppardtown, Va..... | | | | 25 | 75 | |
| 17 | Honey Springs, Indian Ter.... | 17 | 60 | | 150 | 400 | |
| 17 | Wytheville W. Va..... | 17 | 61 | | 75 | | 125 |
| 21-3 | Manassas Gap and Chester Gap, Va..... | 35 | 102 | | 300 | | |
| | AUGUST. | | | | | | |
| 1-3 | Rappahannock, Station, Va... | 16 | 134 | | | | |
| 3 | Jacksonville, La..... | 2 | 2 | 27 | | | |
| 9 | Sparta, Tenn..... | 6 | 25 | | | | |
| 20 | Lawrence, Kas., burned..... | | | | | | |
| 21 | Massacre at Lawrence, Kas.. | 140 | 24 | | 40 | | |
| 26 | Rocky Gap, Va..... | 16 | 113 | | 150 | | |
| 25 | to 31. Brownsville Bayou, Ark | 13 | 72 | | | | |
| | SEPTEMBER. | | | | | | |
| 8 | Night attack on Ft. Sumter... | 3 | | 114 | | | |

| DATE. | SEPTEMBER, 1863. | CASUALTIES. | | | | | |
|-------|---|-------------|------|------|---------|------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 9 | Cumberland Gap, Tenn..... | | | | | | 2000 |
| 13 | Culpepper, Va | 3 | 40 | | 10 | 40 | 75 |
| 19 | and 20. Chickamauga, Ga. Army of Cumberland; 13,412 Confed. wounded..... | 1644 | 9262 | 4945 | 2389 | | 2003 |
| 22 | Blountsville, Tenn..... | 5 | 22 | | 15 | 50 | 100 |
| 29 | Near Morganzia, La..... | 14 | 40 | 400 | | | |
| | OCTOBER, | | | | | | |
| 11 | Henderson's Mills, Tenn..... | | 11 | | 30 | | |
| 12-3 | Ingham's Mills and Wyatt's, Miss | 45 | | | 50 | | |
| 13 | Culpepper and White Sulphur Springs, Va..... | 8 | 46 | | | | |
| 14 | Auburn, Va..... | 11 | 42 | | 8 | 24 | |
| 14 | Bristol Station, Va..... | 51 | 329 | | 750 | | 150 |
| 15-8 | Canton, Brownsville, and Clin- ton, Miss..... | | | | 200 | | |
| 17 | President Lincoln calls for 300,000 more men..... | | | | | | |
| 18 | Charlestown, W. Va..... | 12 | 13 | 379 | | | |
| 21 | Cherokee Station, Ala..... | 7 | 37 | | 40 | | |
| 25 | Pine Bluff, Ark..... | 11 | 27 | | 53 | 164 | |
| 26 | Cane Creek, Ala..... | 2 | 6 | | 10 | 30 | |
| 27 | Wauhatchie, Tenn..... | 76 | 339 | | 300 | 1200 | |
| | NOVEMBER. | | | | | | |
| 3 | Grand Cateau, La..... | 26 | 124 | 570 | 60 | 320 | 65 |
| 3-4 | Colliersville & Moscow, Tenn | 7 | 57 | | | 100 | |
| 6 | Rogersville, Tenn..... | 5 | 12 | 650 | 10 | 20 | |
| 6 | Droop Mountain, Va..... | 31 | 94 | | 50 | 250 | 100 |
| 7 | Rappahannock Station, Va... | 370 | | | 11 | 98 | 1627 |
| 11 | Natchez, Miss..... | 4 | 6 | | 4 | 8 | |
| 14 | Huff's Ferry, Tenn..... | 100 | | | | | |
| 14 | Maysville, Tenn..... | 100 | | | | | |
| 16 | Campbell's Station, Tenn.... | 60 | 340 | | 570 | | |
| 17 | to Dec. 4. Siege of Knoxville, Tenn. Army of the Ohio.... | 20 | 80 | | 80 | 400 | 300 |
| 23-5 | *Chattanooga, Tenn., Look- out Mt., and Mis'y Ridge, Army of the Tennessee..... | 757 | 4529 | 330 | 361 | 2181 | 6141 |
| 26-8 | Operations at Mine Run, Va., Army of the Potomac..... | 100 | 400 | | 100 | 400 | |
| 27 | Cleveland, Tenn..... | | | | | | 200 |
| 27 | *Ringgold and Taylor's Ridge, Ga..... | 68 | 351 | | 50 | 200 | 230 |
| | DECEMBER. | | | | | | |
| 10-4 | Bean's Sta. and Morristown, Tenn..... | 700 | | | 932 | | 150 |

| DATE. | DECEMBER, 1863. | CASUALTIES. | | | | | |
|-------|---------------------------------|-------------|------|------|---------|-----|-----|
| | | UNION | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 19 | Barran Fork, Ind. Ter..... | | | | 50 | | |
| 28 | Charleston, Tenn..... | 2 | 15 | | 8 | 39 | 21 |
| 30 | St. Augustine, Fla..... | 4 | | | | | |
| | JANUARY, 1864. | | | | | | |
| 1 | London Heights, Va..... | 29 | | 41 | 4 | 10 | |
| 3 | Jonesville, Va..... | 12 | 48 | 300 | 4 | 12 | |
| 13 | Mossy Creek, Tenn..... | | | | 14 | | |
| 16-7 | Dandridge, Tenn..... | | 150 | | | | |
| 23 | Rolling Prairie, Ark..... | 11 | | | | | |
| 24 | Taswell, Tenn..... | | | | 31 | | |
| 27 | Kelly's Ford, Tenn..... | 100 | | | 65 | | |
| 29 | Medley, W. Va..... | 10 | 70 | | | 100 | |
| | FEBRUARY. | | | | | | |
| 1-3 | Newberne, N. C..... | 16 | 50 | 250 | 5 | 30 | |
| 1 | March 8. Yazoo River exp'd'n | 35 | 121 | | 35 | 90 | |
| 3- | March 5. Expedition from | | | | | | |
| | Vicksburg to Meridian, Miss. | 50 | 138 | 105 | 503 | | 212 |
| 5 | Qualatown, N. C..... | 3 | 6 | | | | 50 |
| 6 | Morton's Ford, Va..... | 10 | 201 | | | | 100 |
| 9 | Morgan's Mills, Ark..... | 1 | 4 | | 65 | | |
| 10- | 25. Smith's raid from Ger- | | | | | | |
| | mantown, Tenn., into Miss.. | 43 | 267 | | | 50 | 300 |
| 14-5 | Waterproof, La. Col'd troops. | 8 | 14 | | 15 | | |
| 20 | Olustee or Silver Lake, Fla... | 193 | 1175 | 400 | 100 | 400 | |
| 22 | Mulberry Gap, Tenn..... | 13 | | 256 | | | |
| 25-7 | Buzzard Roost, Ga..... | 17 | 272 | | 20 | 120 | |
| 28- | March 4. Kilpatrick's raid from | | | | | | |
| | Stephensburg to Richmond, Va. | 330 | | | 308 | | |
| | MARCH. | | | | | | |
| 1 | Burton's Ford, Va..... | 10 | | | | | 30 |
| 9 | Suffolk, Va..... | 8 | 1 | | | 25 | |
| 17 | Manchester, Tenn..... | | | | 21 | | |
| 17 | Gen. Grant assumes command | | | | | | |
| | of all the armies of the U. S. | | | | | | |
| 21 | Henderson Hills, La..... | | 1 | | 8 | | 250 |
| 25 | Ft. Anderson, Ky..... | 14 | 46 | | 10 | 40 | |
| 26 | to 30. Longview and Mt. Elba, | | | | | | |
| | Ark..... | 4 | 18 | | 12 | 35 | 300 |
| 31 | Near Snydersville, Miss..... | 16 | 3 | | 3 | 7 | |
| | APRIL. | | | | | | |
| 2 | Spooneville, Ark..... | 10 | 33 | | 100 | | |
| 3 | Okalona, Ark..... | 16 | 74 | | 85 | | |
| 5 | Roseville, Ark..... | 19 | 11 | | 15 | 25 | 11 |
| 7 | Wilson's Farm, La..... | 14 | 39 | | 15 | 40 | 100 |
| 8-9 | Sabin Cross Roads and Pleas- | | | | | | |
| | ant Hills, La..... | 300 | 1600 | 2100 | 600 | 204 | 500 |
| 10-3 | Prairie di Ann, Ark..... | 100 | | | 50 | | |

| DATE. | APRIL, 1864. | CASUALTIES. | | | | | |
|-------|--|-------------|-------|-------|---------|------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 12 | Pleasant Hill Landing, La.... | | 7 | | 200 | | |
| 15 | and 16. Liberty P.O. and occu- pation of Camden, Ark | 255 | | | | | |
| 17 | to 20. †Plymouth, N. C..... | 20 | 80 | 1500 | 500 | | |
| 18 | Poison Springs, Ark..... | 113 | 88 | 68 | | | |
| 23 | and 24. Moneti's Bluff, La.... | 350 | | | 400 | | |
| 24 | Mark's Mills, Ark..... | 100 | 250 | 100 | 110 | 228 | 40 |
| 30 | Jenkin's Ferry, Ark..... | 200 | 955 | | 300 | 300 | |
| | MAY. | | | | | | |
| 1-8 | Hudnot's plantat'n, near Alex- andria, La..... | 33 | 87 | | 25 | 100 | |
| 5-7 | Battle of the Wilderness, Va. Army of the Potomac..... | 5597 | 21463 | 10677 | 2000 | 6000 | 3400 |
| 6 | Gen. Sherman begins his At- lanta campaign..... | | | | | | |
| 5-9 | Rocky Face Ridge, Ga. Army of the Cumberland..... | 200 | 637 | | 600 | | |
| 6-7 | Chester Station, Va..... | 48 | 250 | | 50 | 200 | |
| 8 | Todd's Tavern, Va..... | 40 | 150 | | 30 | 150 | |
| 8- | 18. Spottsylvania, Fredericks- burg Road, Army of the Po- mac. (2 Confederate generals and 30 guns captured)..... | 4177 | 10687 | 2577 | 1000 | 5000 | 3000 |
| 9- | 10. Swift Creek, Va..... | 90 | 400 | | | | 500 |
| 9- | 10. Cloy'n's Mountain, Va.... | 126 | 585 | | 699 | | 300 |
| 9- | 13. Sheridan's cavalry raids in Virginia..... | 50 | 174 | 200 | | | 100 |
| 12-6 | Drury's Bluff, Va..... | 422 | 2383 | 210 | 400 | 2000 | 100 |
| 13-6 | * Resaca, Ga..... | 600 | 2147 | | 300 | 1500 | 1000 |
| 15 | Newmarket, Va..... | 120 | 500 | 240 | 85 | 320 | |
| 16 | to 30. Bermuda Hundred, Va. | 200 | 1000 | | 3000 | | |
| 18 | Calhoun Station, La..... | 60 | 300 | | 500 | | |
| 23-7 | North Ann River, Va..... | 223 | 1400 | 290 | 2000 | | |
| 25 | to June 4. *Dallas, Ga. Army of the Cumberland..... | 2400 | | | 3000 | | |
| 26-9 | Decatur, Ala..... | 48 | | | 60 | | |
| 27-8 | Hanoverton, Va..... | 25 | 119 | 200 | 475 | | |
| 30 | Ashland, Va..... | 26 | 130 | | | | |
| | JUNE. | | | | | | |
| 1-12 | †Cold Harbor, Va.: 10,570 Fed. wounded..... | 1995 | | 2450 | 1200 | | 500 |
| 5 | Piedmont, W. Va..... | 130 | 650 | | 400 | 1450 | 1060 |
| 6 | Lake Chicot, Ark..... | 40 | 70 | | 100 | | |
| 9 | Mount Sterling, Ky..... | 35 | 150 | | 50 | 200 | 250 |
| 9-30 | Kenesaw Mountain, Army of the Cumberland..... | 1370 | 6500 | 800 | 1100 | | 3500 |
| 10 | Brice's Cross Roads, Miss.... | 223 | 394 | 1623 | 131 | 475 | |

| DATE. | JUNE, 1864. | CASUALTIES. | | | | | |
|-------|--|-------------|------|------|---------|------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 11 | Cynthiana, Ky..... | 150 | | | 300 | | 400 |
| 11 | and 12. Trevillian Sta., Va.. | 85 | 490 | 160 | 100 | | 370 |
| 15 | Malvern Hill..... | 25 | 3 | | | | |
| 15-9 | †Petersburg, Va., Army of the James..... | 1398 | 7474 | 1814 | 200 | | |
| 17 | and 18. Lynchburg, Va..... | 100 | 500 | 100 | | | |
| 19 | Alabama sunk off Charbourg, France, by the Kearsage... | | | | | | |
| 20 | to 30. In front of Petersburg, Va..... | 112 | 506 | 800 | | | |
| 22-3 | Jerusalem Plank road, Va. Army of the Potomac..... | 604 | 2494 | 2117 | | 300 | 200 |
| 22 | to 30. †Wilson's raid on the Weldon railroad, Va..... | 92 | 317 | 734 | 365 | | |
| 23-4 | Jones' Bridge, Va..... | 54 | 235 | 300 | 250 | | |
| 25-9 | Clarendon, St. Charles river, Ark..... | | 200 | | | 200 | 200 |
| 28 | Confederates move on Washington by way of the Shenandoah Valley, Va..... | | | | | | |
| | JULY. | | | | | | |
| 1 | to 31, In front of Petersburg, Va., Deep Bottom, Newmarket and Malvern Hill... | 898 | 4060 | 3110 | 400 | 600 | 200 |
| 2-5 | Smyrna, Ga..... | 60 | 310 | | 100 | | |
| 3-9 | Expedition from Vicksburg to Jackson, Miss..... | | 150 | | | 200 | |
| 5-18 | Smith's expedition from La Grange, Tenn., to Tapola, Miss..... | 85 | 567 | | 110 | 600 | |
| 6-10 | Chattahoochee river, Ga. Army of the Ohio..... | 80 | 450 | 200 | | | |
| 9 | Monocacy, Md..... | 90 | 579 | 1200 | | 400 | |
| 12 | Ft. Stephens, Washington, D.C | 54 | 319 | | 500 | | |
| 18 | Ashby's Gap, Va..... | 200 | | | | | |
| 19 | 20. Winchester, Va..... | 37 | 175 | | | 300 | 200 |
| 20 | *Peachtree Creek, Ga..... | 300 | 1310 | | 1113 | 2500 | 0083 |
| 22 | *Atlanta, Ga. (McPherson k'd) | 500 | 2141 | 1000 | 2482 | 4000 | 2017 |
| 24-4 | Kernstown and Winchester.. | 1200 | | | 600 | | |
| 26- | 31. Stoneman's raid to Macon | 100 | | 990 | | | |
| 26- | 31. McCook's raid to Lovejoy Station, Ga..... | 100 | 500 | | | | |
| 28 | Atlanta, Ga, Second sortie at Ezra Chapel..... | 100 | 600 | | 642 | 4000 | 1900 |
| | AUGUST. | | | | | | |
| 1-31 | In front of Petersburg, Va.... | 87 | 484 | | | | |
| 5-23 | *Ft. Gaines, Mobile Harbor, | | | | | | |

CASUALTIES.

| DATE. | OCTOBER, 1864. | CASUALTIES. | | | | | |
|-------|--|-------------|------|------|---------|------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| | Ala. (100 drowned by sinking of the Tecumseh. 150 guns captured)..... | 75 | | 170 | | | 2144 |
| 7 | Morefield, Va..... | 9 | 22 | | 100 | | 400 |
| 9 | Explosion at City Point, Va... | 70 | 130 | | | | |
| 14-8 | Strawberry Plains, Va..... | 400 | 1755 | 1400 | | 1000 | |
| 16 | Front Royal, Va..... | 13 | 58 | | 30 | 150 | 300 |
| 18 | 19, 21. *Six Mile House, Weldon R. R. (Railroad cap'd). | 212 | 1155 | 3176 | | 2000 | 2000 |
| 21 | Summitt Pt., Berryville, and Flowing Springs, Va..... | 600 | | | 400 | | |
| 25 | Smithville and Kearneysville, Va..... | 20 | 60 | 100 | 300 | | |
| 25 | Ream's Station, Va..... | 127 | 546 | 1709 | 1500 | | |
| 29 | Smithfield, Va..... | 10 | 90 | | 200 | | |
| 31 | And | | | | | | |
| | SEPTEMBER. | | | | | | |
| 1 | Jonesboro, Ga..... | 1149 | | | 200 | | |
| 1-8 | Rosseau's pursuit of Wheeler in Tennessee..... | 10 | 30 | | 300 | | |
| 10 | Oct. 30. In front of Petersburg, Va. Army of the Pot'c | 170 | 820 | 812 | | 1000 | |
| 2 | *Fall of Atlanta, Ga..... | | | | | | 200 |
| 3-4 | Berryville, Va..... | 30 | 182 | 100 | 25 | 100 | 79 |
| 4 | Greenville, Tenn..... | | 5 | | 10 | 60 | 75 |
| 16 | Sycamore Church, Va..... | 400 | | | 50 | | |
| 19- | 22. *Winchester and Fisher's Hills, Va. 2d Div. 19th corps under Sheridan. (Con.Gens. Rhodes and Gordon killed). | 693 | 4033 | 623 | 3250 | | 3600 |
| 23 | Athens, Ala..... | | | 950 | 5 | 25 | |
| 26-7 | *Pilot Knob, or Ironton, Mo.. | 28 | 56 | 100 | 1500 | | |
| 27 | Massacre by Price, Mo..... | 122 | 2 | | | | |
| 28- | 30. Newmarket Heights, or Laurel Hill, Va..... | 400 | 2029 | | 2000 | | |
| 30 | And | | | | | | |
| | OCTOBER. | | | | | | |
| 1 | Poplar Springs Church, Va... | 141 | 788 | 1750 | | 800 | 100 |
| 2 | Waynesboro, Va..... | 50 | | | | | |
| 2 | Saltville, Va.. | 54 | 190 | 104 | 18 | 71 | 21 |
| 5 | Allatoona, Ga..... | 142 | 352 | 212 | 231 | 500 | 411 |
| 7-13 | Darbytown Road, Va..... | 105 | 502 | 206 | 1100 | | 350 |
| 13 | Strasburg, Va..... | 30 | 144 | 40 | | | |
| 13 | Dalton, Ga. Troops under Col. Johnson..... | | | 400 | | | |
| 15 | Glascow, Mo..... | | 400 | | 50 | | |
| 19 | *Cedar Creek, Va, (Sheridan's ride)..... | 588 | 3516 | 1891 | 3000 | | 1200 |

| DATE. | OCTOBER, 1864. | CASUALTIES. | | | | | |
|-------|--------------------------------|-------------|------|------|---------|------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 27 | †Natcher's Run, Va..... | 156 | 1047 | 699 | 206 | 600 | 200 |
| 27-8 | Fair Oaks, Va..... | 120 | 783 | 400 | 60 | 311 | 80 |
| 29 | Beverly, W. Va..... | 8 | 25 | 13 | 17 | 27 | 92 |
| | NOVEMBER. | | | | | | |
| 9 | Atlanta, Ga..... | | | | 20 | | |
| 12 | Newton and Cedar Spring, Va | | 84 | 100 | | | 150 |
| 13 | Ball's Gap, Tenn..... | 5 | 36 | 200 | | | |
| 18 | Myerstown, Va..... | 60 | | | 10 | | |
| 22 | Griswoldville, Ga..... | 10 | 52 | | 50 | 200 | 400 |
| 26 | Saundersonville, Ga..... | | | 100 | | | 100 |
| 26-9 | Sylvan Grove, Ga..... | 46 | | | 600 | | |
| 29- | 30. *Spring Hill and Franklin, | | | | | | |
| | Tenn..... | 189 | 1033 | 1004 | 1750 | 3800 | 702 |
| 30 | Honey Hill, or Grahamsville, | | | | | | |
| | S. C..... | 66 | 645 | | | | |
| | DECEMBER. | | | | | | |
| 1 | Stony Creek Station, Va..... | | 40 | | | | 175 |
| 1-14 | *In front of Nashville, Tenn. | 16 | 100 | | | | |
| 1-31 | In front of Petersburg. Army | | | | | | |
| | of the Potomac..... | 40 | 329 | | | | |
| 4 | Block House No. 7, Tenn..... | | 100 | | 100 | | |
| 5-8 | Murfreesboro, Tenn..... | 30 | 175 | | | | 197 |
| 6-9 | Deveaux's Neck, S. C..... | 39 | 300 | 200 | 400 | | |
| 8-9 | Hatcher's Run, Va..... | 125 | | | | | |
| 10- | 21. Siege of Savannah, Ga.... | | 200 | | | | 800 |
| 12- | 21. Stoneman's raid, Bean's | | | | | | |
| | Sta., Tenn., to Saltv'le, Va. | 20 | 123 | | 8 | 126 | 500 |
| 13 | *Ft. McAllister, Ga..... | 24 | 110 | | | | 250 |
| 15-7 | Nashville, Tenn..... | 400 | 1740 | | | | 4462 |
| 17 | Franklin, Tenn. Wilson's cav. | | | | | | |
| | Wounded and sick captured | | | | | | 1800 |
| 25 | †Ft. Fisher, N. C..... | 8 | 38 | | 3 | 55 | 280 |
| 28 | Egypt Station, Miss..... | 23 | 88 | | | | 500 |
| | JANUARY, 1865. | | | | | | |
| 2 | Franklin, Miss..... | 4 | 9 | | 20 | 30 | |
| 13-5 | *Ft. Fisher, N. C..... | 184 | 749 | | 400 | | 2083 |
| 16 | Explosion of magazine at Ft. | | | | | | |
| | Fisher, N. C. (Fort and 72 | | | | | | |
| | guns captured)..... | 25 | 66 | | | | |
| 25 | To Feb. 9. Combahee River, | | | | | | |
| | S. C..... | 138 | | | | | |
| | FEBRUARY. | | | | | | |
| 5-7 | †Dabney's Mills, Hatcher's | | | | | | |
| | Run, Va..... | 232 | 1062 | 186 | 1200 | | |
| 8-14 | Williston, Blackville, and | | | | | | |
| | Aiken, S. C. Kilpatrick's cav. | | | | 200 | | 100 |
| 10 | James Island, S. C..... | 20 | 76 | | 20 | 70 | |

| DATE. | FEBRUARY, 1865. | CASUALTIES. | | | | | |
|-------|---|-------------|------|------|---------|------|------|
| | | UNION. | | | CONFED. | | |
| | | K. | W. | P-M | K. | W. | P-M |
| 18- | 22. Ft. Anderson, N. C..... | 40 | 204 | | 70 | 400 | 375 |
| 27- | March 25. Sheridan's raid in Virginia..... | 35 | | | | | 1667 |
| | MARCH. | | | | | | |
| 8-10 | Wilcox Bridge, N. C..... | 80 | 421 | 600 | 1500 | | |
| 16 | Averysboro, N. C..... | 77 | 477 | | 108 | 540 | 217 |
| 19- | 21. *Bentonville, N. C., Kilpatrick's cavalry..... | 191 | 1086 | 287 | 267 | 0 | 1625 |
| 22- | April 24. Wilson's raid from Chickasaw, Ala., to Macon. | 63 | 345 | 63 | 22 | 38 | 6766 |
| 25 | Ft. Stedman, in front of Petersburg, Va..... | 68 | 337 | 506 | 800 | | 1881 |
| 25 | Assault of 2d and 6th corps... | 103 | 864 | 209 | | | 834 |
| 26- | April 9. Siege of Mobile, Ala., including Spanish fort and Port Blakely..... | 213 | 1211 | | 500 | | 2952 |
| 29 | Quaker Road, Va..... | 55 | 300 | | 135 | 400 | 100 |
| 31 | Boynton and White Oak Roads | 177 | 1034 | 556 | | 1000 | 235 |
| 31 | Dinwiddie Court House, Va. | 67 | 354 | | 400 | | |
| | APRIL. | | | | | | |
| 1 | *Five Forks, Va. All of Lee's artillery captured)..... | 124 | 706 | | 3000 | | 5500 |
| 2 | Fall of Petersburg, Va..... | 269 | 2565 | 5000 | | | 3000 |
| 3 | Fall of Richmond. 6,000 Con. prisoners taken, of whom 5,000 were sick and wounded | | | | | | |
| 5 | Amelia Springs, Va..... | 20 | 96 | | | | |
| 6 | Sailor's Creek, Va..... | 166 | 1014 | | 1000 | | 6000 |
| 7 | Farmville, Va..... | 655 | | | | | |
| 8-9 | Appomattox Court House. Va. | 200 | | | 500 | | |

APRIL—CONTINUED.

9—Lee surrendered to the Armies of the Potomac and James (Maj.-Gen. Grant), with 26,000 prisoners.

14—Mobile surrendered to a combined army and naval attack.

14—The flag that Gen. Anderson had lowered at Ft. Sumter was returned to its position.

14—President Lincoln was assassinated at Washington. He was shot in the back of the head at Ford's theatre by Wilkes Booth, and died next morning.

15—Andrew Johnson, Vice-President, took the oath of office as President.

17—Surrender of Mosby to Maj.-Gen. Hancock, with 700 prisoners.

25—Wilkes Booth shot in a barn in Virginia and died in twenty-four hours.

APRIL—CONTINUED.

26—Johnson surrendered to the Armies of the Tennessee, Georgia, and Ohio (Maj.-Gen. Sherman), with 29,924 prisoners.

MAY, 1865.

5—Galveston, Tex., surrenders to the Federals.

10—Capture of Jefferson Davis at Irwinsville, Ga.

10—Surrender of Sam. Jones' command at Tallehassee, Fla., with 8,000 prisoners.

11—Chalk Bluff, Ark. Surrender of Jeff Thompson's command with 7,454 prisoners.

13—Palmetto Ranch, Tex., 118 Federals killed.

26—Surrender of Kirby Smith to Maj.-Gen. Canby's command with 20,000 prisoners.

26—The Armies of the East and West were disbanded and returned home, after a review at Washington.

JUNE, 1865.

6—An order was issued for the release of all prisoners of war in the depots of the North.

JULY, 1865.

7—Mrs. Surratt, Harold, Payne, and Azertoth hanged at Washington for conspiracy in the murder of Lincoln.

DECEMBER, 1865.

18—Secretary Seward officially declared slavery abolished.

EXPLANATION OF MARKS AND ABBREVIATIONS.

* Federals victorious.

† Confederates victorious.

k—Killed.

w—Wounded.

m—Missing.

p-m—Prisoners and missing.

ELECTRICITY.

As far back as 321 B. C., the ancient philosopher Theophrastus mentions the power of amber to attract straws and dry leaves, Pliny, in 70 A. D., writes concerning the same phenomenon, and it is from the Greek name of "amber," pronounced "elektron," that we call this phenomenon "electricity." Dr. Gilbert, of Colchester, may be considered the founder of the *science* of electricity, for it was he that carefully repeated the observations of the ancients, and experimented in various ways and published these experiments in a book during the period between 1540 and 1603. Sir Wm. Watson (1715 to 1807) distinctly announced the theory of *positive* and *negative* electricity, which was afterwards elaborated by Dr. Benjamin Franklin. Dr. Franklin also established the fact that the lightning was an electrical spark, similar to that made by an electric machine or Leyden jar. In 1790, Galvani discovered that the contact of metals produced muscular contraction in the legs of a dead

frog, and in 1800, Volta discovered the art of generating electricity by contact of metals with damp cloths. From these we obtained the *galvanic battery* and the *voltaic pile*. It remained with Prof. H. C. Oersted, of Copenhagen, however, to bring forward the most important fact, viz., the *magnetic* action of the *electrical* current. This was in 1820. As soon as the discovery reached France, the eminent French philosopher Ampere set to work to develop the important consequences it involved. Faraday in 1820, discovered *electric-magnetic* rotation. From this time up, experimentists and theorists were busy searching for ways and means by which the *electrical energy* could be utilized as mechanical power, and to-day the galvanic battery and electric dynamo are rapidly ousting steam, and in a thousand ways doing its work with less noise, expense and better results. Electrical lighting is done by means of the *arc* and *incandescent* systems.

THE PHONOGRAPH.

THE PHONOGRAPH is a machine for recording and then transmitting sounds, speech, music, etc. It is the invention of Thos. A. Edison, the most noted electrician of this age. The phonograph was accidentally discovered. Mr. Edison was at work on an apparatus for recording a telegraphic message, by having an armature (with a needle fastened in one end) of the sounder make indentations on a piece of tin foil wrapped around a cylinder. The message would thus be punctured or indented on this tin foil, then, by substituting another needle—blunt—for the sharp one and turning the cylinder, the armature would be vibrated as the needle entered into and passed out of the indentations. While experimenting, he turned the cylinder very rapidly, and instead of a succession of "clicks," a musical sound was produced. He seized the idea, and the Edison Phonograph was the result. The perfected phonograph of to-day consists of a cylinder of wax, or other plastic material, which is revolved either by hand, foot power or an electric motor. This cylinder, called the *phonogram*, is used for recording the sound. This is done by a diaphragm—such as is used in a telephone—into the center of which is fastened a sharp needle, which rests upon and just touches the phonogram. When the words are spoken the diaphragm vibrates, moving this needle up and down, and a series of indentations are made in a spiral line on the phonogram, which is turning around about eighty-five times a minute. To make the phonograph *speak*, or repeat the words, another diaphragm, similar to the first or recorder, but having a blunt instead of a sharp needle, is placed at the starting point and the phonogram made to revolve, of course, as the needle passes over the indentations it vibrates the diaphragm and the words are reproduced—as in a telephone. The phonograph faithfully reproduces music, whistling, singing, speech, or any sounds, and the phonograms can be packed into a mailing tube and sent all over the world to be used as often as desired.

THE TELEPHONE.

In 1831, Wheatstone showed that when the sounding boards of two musical instruments were connected together by a rod of pine wood, a tune played on one will be faithfully reproduced by the other. Somewhat later a toy, called the Lovers' String, was made, and is the simplest form of a mechanical telephone. The toy consisted of two tin cups, the bottoms made of parchment or cat gut tightly stretched like a drum head, and connected, one with the other, by a string or cord. When the string was drawn taut, sounds, such as those of ordinary speech, produced in front of one of the cups were transmitted along the string to the other cup and reproduced there. This was the first telephone. At various times between 1831 and 1876, electricians and scientists had experimented with electro-magnets as a means of transmitting sounds a long distance. Charles Bourseul in 1854 published an article on the electrical transmission of speech, and recommended the use of a flexible plate at the source of sound, which would vibrate in response to the atmospheric pulsations and thus open and shut an electrical circuit, and would thus operate, by an electro-magnet, upon a similar plate at a distance connected by wire with the first, causing it to give out as many pulsations as there were breaks in the circuit. In 1876, Alexander Graham Bell first exhibited the speaking telephone at the Philadelphia Centennial Exposition. It is this telephone, greatly improved, however, which is now in common use. This telephone consists of a compound permanent magnet fitted into the center of a hard rubber tube and carrying, at one end, a short electro-magnet. In front of this electro-magnet is fixed a thin, soft iron disk, about one and three-fourths inches in diameter. This disk lies at the end of the rubber tube, where the tube is formed into a mouth piece. The action of telephoning with this telephone is very simple. The sound, as ordinary speech, is made in the mouth piece. The atmosphere conveys the sound—vibrations against the thin, iron disk (commonly called the diaphragm.) The disk vibrates in sympathy, and coming against the electro-magnet, breaks and opens the electric circuit with every vibration. By means of the connecting wire, the electro-magnet in the distant telephone causes the diaphragm to vibrate corresponding to the breaks in the current. This of course vibrates the atmosphere and the pulsations are conveyed to the ear. The telephone thus described is now used as a receiver. The transmitter invented and improved by Edison and Blake, is combined with the Bell telephone and makes the telephone of general use. Telephonic communication have been held between Chicago and New York, but not with overwhelming success.

Highest and Greatest Mountains in the World.

| NAME. | COUNTRY | Feet High. | Miles |
|---|------------------|------------|-----------------|
| Mt. Everest (Himalayas)..... | Thibet.... | 29,002 | 5 $\frac{3}{4}$ |
| Sorato, the highest in America..... | Bolivia..... | 21,284 | 4 |
| Illimani..... | Bolivia..... | 21,145 | 4 |
| Chimborazo..... | Ecuador..... | 21,422 | 4 $\frac{2}{3}$ |
| Hindoo-Koosh..... | Afghanistan..... | 20,600 | 3 $\frac{3}{4}$ |
| Demavend, highest of Elburz Mts..... | Persia..... | 20,000 | 3 $\frac{3}{4}$ |
| Cotopaxi, highest volcano in the world..... | Ecuador..... | 19,496 | 3 $\frac{3}{4}$ |
| Antisana..... | Ecuador..... | 19,150 | 3 $\frac{1}{2}$ |
| St. Elias, highest in North America.... | Alaska..... | 17,850 | 3 $\frac{1}{3}$ |
| Popocatepetl, volcano..... | Mexico..... | 17,540 | 3 $\frac{1}{3}$ |
| Mt. Roa, highest in Oceanica..... | Hawaii..... | 16,000 | 3 |
| Mt. Brown, highest peak of R'ky Mts.. | Brit. America | 15,900 | 3 |
| Mont Blanc, highest in Europe, Alps.. | Savoy..... | 15,732 | 3 |
| Mt. Rosa, next highest peak of Alps.. | Savoy..... | 15,150 | 2 $\frac{7}{8}$ |
| Limit of perpetual snow at the.... | Equator..... | 15,207 | 2 $\frac{7}{8}$ |
| Pichinca..... | Ecuador..... | 15,924 | 3 |
| Mt. Whitney..... | California..... | 14,887 | 2 $\frac{3}{4}$ |
| Mt. Fairweather..... | Alaska..... | 14,500 | 2 $\frac{3}{4}$ |
| Mt. Shasta..... | California..... | 14,442 | 2 $\frac{3}{4}$ |
| Mt. Ranier..... | Wash. Territ'y | 14,444 | 2 $\frac{3}{4}$ |
| Long's Peak, Rocky Mountains..... | Colorado..... | 14,271 | 2 $\frac{2}{3}$ |
| Mt. A. arat..... | Armenia..... | 14,320 | 2 $\frac{1}{3}$ |
| Pike's Peak..... | Colorado..... | 14,216 | 2 $\frac{1}{3}$ |
| Mt. Ophir..... | Sumatra..... | 13,800 | 2 $\frac{5}{8}$ |
| Fremont's Peak, Rocky Mountains.... | Wyoming.... | 13,570 | 2 $\frac{5}{8}$ |
| Mt. St. Helens..... | Wash Territ'y | 13,400 | 2 $\frac{1}{2}$ |
| Peak of Teneriffe..... | Canaries..... | 12,182 | 2 $\frac{1}{8}$ |
| Miltzin, highest of Atlas Mountains.... | Morocco..... | 11,500 | 2 |
| Mt. Hood..... | Oregon..... | 11,225 | 2 |
| Mt. Lebanon..... | Syria..... | 10,533 | 2 |
| Mt. Perda, highest of Pyrenees..... | France..... | 10,950 | 2 |
| Mt. Ætna, volcano..... | Sicily..... | 10,835 | 2 |
| Monte Corno, highest of Appenines.... | Naples..... | 9,523 | 1 $\frac{3}{4}$ |
| Sneehattan, highest Dovrefield Mts.... | Norway..... | 8,115 | 1 $\frac{1}{2}$ |
| Pindus, highest in..... | Greece..... | 7,677 | 1 $\frac{1}{2}$ |
| Mount Sinai..... | Arabia..... | 6,541 | 1 $\frac{1}{4}$ |
| Black Mountain, highest in.... | N. Carolina... | 6,760 | 1 $\frac{1}{4}$ |
| Mt. Washington, highest White Mts.... | N Hampshire | 6,285 | 1 $\frac{1}{4}$ |
| Mt. Marcy, highest in..... | New York.... | 5,402 | 1 |
| Mt. Hecla, volcano..... | Iceland..... | 5,104 | 1 |
| Ben Nevis, highest in Great Britain.... | Scotland..... | 4,406 | $\frac{7}{8}$ |
| Mansfield, highest of Green Mountains. | Vermont..... | 4,280 | $\frac{3}{4}$ |
| Peaks of Otter..... | Virginia..... | 4,260 | $\frac{3}{4}$ |
| Mt. Vesuvius..... | Naples..... | 4,253 | $\frac{3}{4}$ |
| Round Top, highest of Catskill Mts.... | New York.... | 3,804 | $\frac{3}{4}$ |

ONE HORSE POWER is the strength necessary to lift 33,000 pounds one foot per minute

HOW FAST THE USE OF THE TELEPHONE IS GROWING.

The 1890 census gives the following startling figures concerning this new branch of electrical contrivances. We only insert round figures.

Capital invested in the Telephone business: 1880, 14 millions; 1890, 72 millions. Gross earnings: 1880, 3 millions; 1890, 16½ millions. Net earnings: 1880, ¾ millions; 1890, 5¼ millions. Number of exchanges: 1880, 437; 1890, 1,241. The number of instruments was from 108,638 to 467,356; the miles of wire from 34,305 to 240,412; the number of employes from 3,338 to 8,645, and the number of subscribers from 48,414 to **227,357**. The census-takers, in 1890, report 453,200,000 conversations to have taken place over the telephone wires of the United States during the preceding year. Isn't that gigantic?

Average Temperature in United States.

AVERAGE OF THREE YEARS.

| | | | |
|----------------------------|------|---------------------------|------|
| Prescott, Arizona..... | 51.9 | Salt Lake City, Utah..... | 50.3 |
| Jacksonville, Florida.... | 70.4 | Morgantown, W. Virginia. | 53.1 |
| New Orleans, Louisiana.. | 70.2 | Indianapolis, Indiana.... | 53.3 |
| Galveston, Texas..... | 70.5 | Leavenworth, Kansas.... | 53.3 |
| Mobile, Alabama..... | 67.4 | Santa Fe, N. Mexico Ter.. | 46.8 |
| Jackson, Mississippi.... | 66 | Spokane Falls, W. Ter... | 46.2 |
| Little Rock, Arkansas.... | 62.3 | New London, Connecticut. | 49.9 |
| Charleston, S. Carolina.. | 66.9 | Chicago, Illinois..... | 48.8 |
| Ft. Gibson, Indian Ter... | 59.4 | Winnemucca, Nevada.... | 48 |
| Charlotte, N. Carolina... | 60.6 | Des Moines, Iowa..... | 48.5 |
| Atlanta, Georgia..... | 61.7 | Omaha, Nebraska..... | 49.5 |
| Memphis, Tennessee.... | 61.7 | Denver, Colorado..... | 49.2 |
| Norfolk, Virginia..... | 60.1 | Boston, Massachusetts... | 48.4 |
| Louisville, Kentucky.... | 57.4 | Albany, New York..... | 50.4 |
| San Francisco, California. | 55 | Providence, Rhode Island. | 48 |
| Washington, D. C..... | 55 | Detroit, Michigan..... | 49.7 |
| St. Louis, Missouri..... | 55 | Ft. Randall, Dakota..... | 47 |
| Baltimore, Maryland.... | 56 | Sitka, Alaska..... | 43.9 |
| Harrisburg, Pennsylvania. | 54 | Concord, New Hampshire. | 46 |
| Wilmington, Delaware... | 53 | Augusta, Maine... .. | 45 |
| Trenton, New Jersey.... | 53 | Madison, Wisconsin..... | 45 |
| Cincinnati, Ohio..... | 56 | Helena, Montana Ter.... | 42.6 |
| Portland, Oregon..... | 51.4 | Burlington, Vermont.... | 45 |
| Boise City, Idaho.... | 49.4 | St. Paul, Minnesota..... | 43.9 |

If a railway were built to the sun, and trains upon it were run at the rate of thirty miles an hour, day and night without a stop, it would require 350 years to make the journey from the earth to the sun.

Average Rainfall in the United States.

| PLACE. | Inches. | PLACE. | Inches. |
|-------------------------------|---------|-----------------------------|---------|
| Ft. Garland, Colorado..... | 6 | Ft. Smith, Arkansas..... | 40 |
| Ft. Bridger, Utah Ter..... | 6 | Providence, Rhode Island.. | 41 |
| Ft. Bliss, Texas..... | 9 | New Bedford, Mass..... | 41 |
| Ft. Colville, Wash. Ter..... | 9 | Baltimore, Maryland..... | 41 |
| San Diego, California..... | 9 | Muscatine, Iowa..... | 42 |
| Ft. Craig, New Mexico Ter.. | 11 | St. Louis, Missouri..... | 43 |
| Ft. Defiance, Arizona..... | 14 | Marietta, Ohio..... | 43 |
| Ft. Randall, Dakota Ter.... | 16 | Richmond, Indiana..... | 43 |
| Ft. Marcy, New Mexico Ter.. | 16 | Gaston, N. Carolina..... | 43 |
| Ft. Massachusetts, Colorado | 17 | New York City, N. Y..... | 43 |
| Sacramento, California..... | 21 | Charleston, S. Carolina.... | 43 |
| Dallas, Oregon..... | 21 | Philadelphia, Pennsylvania. | 44 |
| San Francisco, California.... | 21 | New Haven, Connecticut... | 44 |
| Mackinac, Michigan..... | 23 | Cincinnati, Ohio..... | 44 |
| Salt Lake City, Utah Ter.... | 23 | Brunswick, Maine..... | 44 |
| Ft. Snelling, Minnesota..... | 25 | Boston, Massachusetts.... | 44 |
| Ft. Kearney..... | 25 | Newark, New Jersey..... | 44 |
| Penn Yan, New York..... | 28 | Memphis, Tennessee..... | 45 |
| Milwaukee, Wisconsin..... | 30 | Fortress Monroe, Virginia.. | 47 |
| Detroit, Michigan..... | 30 | Springdale, Kentucky..... | 48 |
| Ft. Leavenworth, Kansas.... | 31 | Savannah, Georgia..... | 48 |
| Ft. Brown, Texas..... | 33 | New Orleans, Louisiana.... | 51 |
| Buffalo, New York..... | 33 | Natchez, Mississippi..... | 53 |
| Burlington, Vermont..... | 34 | Huntsville, Alabama..... | 54 |
| Peoria, Illinois..... | 35 | Washington, Arkansas..... | 54 |
| Key West, Florida..... | 36 | Ft. Myers, Florida..... | 56 |
| Ft. Gibson, Indian Ter..... | 36 | Ft. Tsonson, Indian Ter.... | 57 |
| White Sulphur Springs, Va.. | 37 | Meadow Valley, California.. | 57 |
| Washington, D. C..... | 37 | Baton Rouge, Louisiana.... | 60 |
| Pittsburgh, Pennsylvania.... | 37 | Mt. Vernon, Alabama..... | 66 |
| Cleveland, Ohio..... | 37 | Ft. Haskins, Oregon..... | 66 |
| Ft. Vancouver..... | 38 | Sitka, Alaska..... | 83 |
| Hanover, New Hampshire.... | 40 | Neah Bay, Wash. Ter..... | 123 |

Yards of Wire per Bundle.

Wires all weigh 63 lbs. to the bundle.

| Wire Gauge. | Yards in Bundle. | Wire Gauge. | Yards in Bundle. |
|-------------|------------------|-------------|------------------|
| No. 0..... | 71 | No. 11..... | 529 |
| " 1..... | 91 | " 12..... | 700 |
| " 2..... | 105 | " 13..... | 893 |
| " 3..... | 121 | " 14..... | 1142 |
| " 4..... | 143 | " 15..... | 1468 |
| " 5..... | 170 | " 16..... | 1954 |
| " 6..... | 203 | " 17..... | 2540 |
| " 7..... | 239 | " 18..... | 3150 |
| " 8..... | 286 | " 19..... | 4085 |
| " 9..... | 342 | " 20..... | 4911 |
| " 10..... | 420 | | |

Amount of Barbed Wire Required for Fences.

Estimated number of pounds of barbed wire required to fence space or distances mentioned, with one, two or three lines of wire, based upon each pound of wire measuring one rod ($16\frac{1}{2}$ feet).

| | 1 Line. | 2 Lines. | 3 Lines. |
|-------------------------------|-----------------------|------------------------|--------------|
| 1 square acre..... | 50 $\frac{2}{3}$ lbs. | 101 $\frac{1}{3}$ lbs. | 152 lbs. |
| 1 side of a square acre | 12 $\frac{2}{3}$ lbs. | 25 $\frac{1}{3}$ lbs. | 38 lbs. |
| 1 square half-acre..... | 36 lbs. | 72 lbs. | 108 lbs. |
| 1 square mile..... | 1280 lbs. | 2560 lbs. | 3840 lbs. |
| 1 side of a square mile... .. | 320 lbs. | 640 lbs. | 960 lbs. |
| 1 rod in length..... | 1 lb. | 2 lbs. | 3 lbs. |
| 100 rods in length..... | 100 lbs. | 200 lbs. | 300 lbs. |
| 100 feet in length... .. | 6 1-16 lbs. | 12 $\frac{1}{8}$ lbs. | 18 3-16 lbs. |

Number of Shrubs or Plants for an Acre of Ground.

| <i>Dist. apart.</i> | <i>No. of Plants.</i> | <i>Dist. apart.</i> | <i>No. of Plants.</i> |
|--|-----------------------|---|-----------------------|
| 3 inches by 3 inches..... | 696,960 | 6 feet by 6 feet..... | 1,210 |
| 4 inches by 4 inches..... | 392,040 | 6 $\frac{1}{2}$ feet by 6 $\frac{1}{2}$ feet..... | 1,031 |
| 6 inches by 6 inches..... | 174,240 | 7 feet by 7 feet..... | 881 |
| 9 inches by 9 inches..... | 77,440 | 8 feet by 8 feet..... | 680 |
| 1 foot by 1 foot | 43,560 | 9 feet by 9 feet..... | 537 |
| 1 $\frac{1}{2}$ feet by 1 $\frac{1}{2}$ feet | 19,360 | 10 feet by 10 feet | 435 |
| 2 feet by 1 foot..... | 21,780 | 11 feet by 11 feet..... | 360 |
| 2 feet by 2 feet..... | 10,890 | 12 feet by 12 feet..... | 302 |
| 2 $\frac{1}{2}$ feet by 2 $\frac{1}{2}$ feet..... | 6,960 | 13 feet by 13 feet..... | 257 |
| 3 feet by 1 foot..... | 14,520 | 14 feet by 14 feet..... | 222 |
| 3 feet by 2 feet..... | 7,260 | 15 feet by 15 feet..... | 193 |
| 3 feet by 3 feet..... | 4,840 | 16 feet by 16 feet..... | 170 |
| 3 $\frac{1}{2}$ feet by 3 $\frac{1}{2}$ feet..... | 3,555 | 16 $\frac{1}{2}$ feet by 16 $\frac{1}{2}$ feet..... | 160 |
| 4 feet by 1 foot..... | 10,890 | 17 feet by 17 feet.. | 150 |
| 4 feet by 2 feet..... | 5,445 | 18 feet by 18 feet..... | 134 |
| 4 feet by 3 feet..... | 3,630 | 19 feet by 16 feet..... | 120 |
| 4 feet by 4 feet..... | 2,722 | 20 feet by 20 feet..... | 108 |
| 4 $\frac{1}{2}$ feet by 4 $\frac{1}{2}$ feet | 2,151 | 25 feet by 25 feet | 69 |
| 5 feet by 1 foot | 8,712 | 30 feet by 30 feet | 48 |
| 5 feet by 2 feet..... | 4,356 | 33 feet by 33 feet..... | 40 |
| 5 feet by 3 feet | 2,904 | 40 feet by 40 feet..... | 27 |
| 5 feet by 4 feet..... | 2,178 | 50 feet by 50 feet..... | 17 |
| 5 feet by 5 feet..... | 1,742 | 60 feet by 60 feet..... | 12 |
| 5 $\frac{1}{2}$ feet by 5 $\frac{1}{2}$ feet | 1,417 | 66 feet by 66 feet..... | 10 |

COST OF EMANCIPATION. — If the total cost of the Civil War be divided among the slaves set free, emancipation cost about \$700 per slave.

How Deep in the Ground to Plant Corn.

The following is the result of an experiment with Indian Corn. That which was planted at the depth of

| | |
|---|----------|
| $\frac{3}{8}$ inch, sprout appeared in..... | 8 days |
| 1 inch, sprout appeared in. | 8½ days |
| 1½ inch, sprout appeared in..... | 9½ days |
| 2 inches, sprout appeared in. | 10 days |
| 2½ inches, sprout appeared in..... | 11½ days |
| 3 inches, sprout appeared in..... | 12 days |
| 3½ inches, sprout appeared in..... | 13 days |
| 4 inches, sprout appeared in..... | 13½ days |

The more shallow the seed was covered with earth, the more rapidly the sprout made its appearance, and the stronger afterward was the stalk. The deeper the seed lay, the longer it remained before it came to the surface. Four inches was too deep for the maize, and also too deep for smaller kernels.

How to Measure Corn in Crib, Hay in a Mow, etc.

This rule will apply to a crib of any kind. Two cubic feet of sound, dry corn in the ear will make a bushel shelled. To get the quantity of shelled corn in a crib of corn in the ear, measure the length, breadth and height of the crib, inside of the rail; multiply the length by the breadth and the product by the height; then divide the product by two, and you have the number of bushels in the crib.

To find the number of bushels of apples, potatoes, etc., in a bin, multiply the length, breadth and thickness together, and this product by 8, and point off one figure in the product for decimals.

To find the amount of hay in a mow, allow 512 cubic feet for a ton, and it will come out very near correct.

How Grain Will Shrink.

Farmers rarely gain by keeping their grain after it is fit for market, when the shrinkage is taken into account. Wheat, from the time it is threshed, will shrink two quarts to the bushel or six per cent in six months, in the most favorable circumstances. Hence, it follows that ninety-four cents a bushel for wheat when first threshed in August, is as good, taking into account the shrinkage alone, as one dollar in the following February.

Corn shrinks much more from the time it is first husked. One hundred bushels of ears, as they come from the field in November, will be reduced to not far from eighty. So that forty cents a bushel for corn in the ear, as it comes from the field, is as good as fifty in March, shrinkage only being taken into the account.

In the case of potatoes—taking those that rot and are otherwise lost—together with the shrinkage, there is but little doubt that between October and June, the loss to the owner who holds them is not less than thirty-three per cent.

This estimate is taken on the basis of interest at 7 per cent, and takes no account of loss by vermin.

What a Deed to a Farm in many States Includes.

Everyone knows it conveys all the fences standing on the farm, but all might not think it also included the fencing-stuff, posts, rails, etc., which had once been used in the fence, but had been taken down and piled up for future use again in the same place. But new fencing material, just bought, and never attached to the soil, would not pass. So piles of hop poles stored away, if once used on the land and intended to be again so used, have been considered a part of it, but loose boards or scaffold poles merely laid across the beams of the barn, and never fastened to it, would not be, and the seller of the farm might take them away. Standing trees, of course, also pass as part of the land; so do trees blown down or cut down, and still left in the woods where they fell, but not if cut, and corded up for sale; the wood has then become personal property.

If there be any manure in the barnyard, or in the compost heap on the field, ready for immediate use, the buyer ordinarily, in the absence of any contrary agreement, takes that also as belonging to the farm, though it might not be so, if the owner had previously sold it to some other party, and had collected it together in a heap by itself, for such an act might be a technical severance from the soil, and so convert real into personal estate; and even a lessee of a farm could not take away the manure made on the place while he was in occupation. Growing crops also pass by the deed of a farm, unless they are expressly reserved; and when it is not intended to convey those, it should be so stated in the deed itself; a mere oral agreement to that effect would not be, in most States, valid in law. Another mode is to stipulate that possession is not to be given until some future day, in which case the crops or manures may be removed before that time.

As to the buildings on the farm, though generally mentioned in the deed, it is not absolutely necessary they should be. A deed of land ordinarily carries all the buildings on it, belonging to the grantor, whether mentioned or not; and this rule includes the lumber and timber of any old building which has been taken down or blown down, and packed away for future use on farm.

United States Land Measure and Homestead Law.

A township is 36 sections, each a mile square. A section is 3600 acres. A quarter section, half a mile square, is 900 acres. An eighth section, half a mile long, north and south, and a quarter of a mile wide, is 450 acres. A sixteenth section, a quarter of a mile square, is 225 acres.

The sections are all numbered 1 to 36, commencing at northeast corner, thus:

| 6 | 5 | 4 | 3 | 2 | NW NE |
|----|----|----|----|----|-------|
| | | | | | SW SE |
| 7 | 8 | 9 | 10 | 11 | 12 |
| 18 | 17 | 16 | 15 | 14 | 13 |
| 19 | 20 | 21 | 22 | 23 | 24 |
| 30 | 29 | 28 | 27 | 26 | 25 |
| 31 | 32 | 33 | 34 | 35 | 36 |

The sections are all divided in quarters, which are named by the cardinal points, as in section 1. The quarters are divided in the same way. The description of a forty-acre lot would read: The south half of the west half of the south-west quarter of section 1 in township 24, north of range 7 west, or as the case might be; and sometimes will fall short, and sometimes overrun the number of acres it is supposed to contain.

HOMESTEAD PRIVILEGE.—The laws give to every citizen, and to those who have declared their intention to become citizens, the right to a homestead on SURVEYED lands, to the extent of one-quarter section, or 160 acres, or a half-quarter section, or 80 acres; the former in cases in the class of lower priced lands held by law at \$1.25 per acre, the latter of high priced lands held at \$2.50 per acre, when disposed of to cash buyers. The pre-emption privilege is restricted to heads of families, widows, or single persons over the age of twenty-one.

Every soldier and officer in the army, and every seaman, marine and officer of the navy, during the recent rebellion, may enter 160 acres from either class, and length of time served in the army or navy deducted from the time required to perfect title.

BOOKS PUBLISHED.—There are published daily, throughout the world, about 100 new books, or 30,000 a year.

Number of Pounds to the Bushel, legal weight, in Different States.

| STATES. | Buckwh't. | Corn on the Cob. | Shelled Corn. | Corn Meal | Onions. | Sweet Potatoes. | Potatoes. | Turnips. | Peas. | Beans. | Barley. | Wheat. | Oats. | Rye. | Dried Apples. | Flax Seed | Clover Seed. | Blue Gr'ss Seed. | Anthrac'te Coal. | Timothy Seed. |
|------------------|-----------|------------------|---------------|-----------|---------|-----------------|-----------|----------|-------|--------|---------|--------|-------|------|---------------|-----------|--------------|------------------|------------------|---------------|
| Arkansas..... | 52 | 70 | ... | 50 | 57 | 50 | 60 | ... | 46 | 60 | 48 | 60 | 32 | 56 | 24 | 56 | 60 | 14 | 80 | 45 |
| California..... | 40 | ... | 52 | ... | ... | ... | ... | ... | ... | ... | 50 | 60 | 32 | 54 | ... | ... | ... | ... | ... | ... |
| Connecticut.... | 48 | ... | 56 | 50 | 50 | ... | 60 | 50 | 60 | 60 | 48 | 60 | 32 | 56 | ... | ... | ... | ... | ... | ... |
| Georgia..... | 52 | 70 | 56 | 48 | 57 | 55 | 60 | 55 | 60 | 60 | 47 | 60 | 32 | 56 | 24 | 56 | 60 | 14 | 80 | 45 |
| Illinois..... | 52 | 70 | 56 | 48 | 57 | 55 | 60 | 55 | 60 | 60 | 48 | 60 | 32 | 56 | 24 | 56 | 60 | 14 | 80 | 45 |
| Indiana..... | 50 | 68 | 56 | 50 | 48 | ... | 60 | ... | 60 | 60 | 48 | 60 | ... | 56 | 25 | ... | 60 | 14 | ... | 45 |
| Iowa..... | 52 | 70 | 56 | ... | 57 | 40 | 60 | ... | ... | 60 | 48 | 60 | 32 | 56 | 24 | 56 | 60 | 14 | 80 | 45 |
| Kansas..... | 50 | 70 | 56 | 50 | 57 | 50 | 60 | 55 | 60 | 60 | 48 | 60 | 32 | 56 | 24 | 54 | 60 | 14 | 80 | 45 |
| Kentucky..... | 55 | 70 | 55 | 50 | 57 | 55 | 60 | 60 | 60 | 60 | 47 | 60 | 32 | 56 | 24 | 56 | 60 | 14 | 76 | 45 |
| Maine..... | 48 | ... | 56 | 50 | 52 | ... | 60 | 50 | 60 | 64 | 48 | 60 | 30 | 50 | ... | ... | ... | ... | ... | ... |
| Massachusetts.. | 48 | ... | 55 | 50 | 52 | 56 | 60 | ... | 60 | 60 | 48 | 60 | 32 | 56 | 22 | 56 | 60 | 14 | ... | 45 |
| Michigan..... | 48 | 70 | 56 | 50 | 54 | 56 | 60 | 58 | 60 | 60 | 48 | 60 | 32 | 56 | 28 | ... | 60 | ... | ... | ... |
| Minnesota..... | 42 | ... | 56 | ... | ... | ... | 60 | ... | ... | 60 | 48 | 60 | 32 | 56 | 24 | 56 | 60 | 14 | ... | 45 |
| Missouri..... | 52 | ... | 56 | ... | 57 | ... | 60 | ... | ... | 60 | 48 | 60 | 32 | 56 | ... | ... | 60 | ... | ... | ... |
| New Hampshire.. | ... | ... | 56 | 50 | ... | ... | 60 | ... | 60 | 60 | ... | 60 | 32 | 56 | ... | ... | 60 | ... | ... | ... |
| New Jersey..... | 50 | ... | 56 | ... | 57 | 54 | 60 | ... | 60 | 60 | 48 | 60 | 30 | 56 | 25 | 55 | 64 | ... | ... | ... |
| New York..... | 48 | ... | 56 | ... | ... | ... | 60 | ... | 60 | 62 | 48 | 60 | 32 | 56 | ... | 55 | 60 | ... | ... | 44 |
| North Carolina.. | 50 | ... | 54 | 46 | ... | ... | 60 | ... | 50 | 60 | 48 | 60 | 30 | 56 | 22 | 96 | 62 | ... | ... | 45 |
| Ohio..... | 50 | 70 | 56 | ... | 50 | 50 | 60 | ... | 50 | 60 | 48 | 60 | 32 | 56 | ... | ... | ... | ... | ... | ... |
| Pennsylvania.... | 48 | ... | 56 | ... | ... | ... | 56 | ... | ... | ... | 47 | 60 | 32 | 56 | ... | ... | ... | ... | ... | ... |
| Rhode Island.... | ... | ... | 56 | 50 | 50 | ... | 60 | ... | ... | ... | 48 | 60 | 32 | 56 | ... | ... | ... | ... | ... | ... |
| South Carolina.. | 56 | 70 | 56 | 50 | 57 | 50 | 60 | ... | 60 | 60 | 48 | 60 | 33 | 56 | 26 | 44 | 60 | 14 | ... | ... |
| Tennessee..... | 56 | 72 | 56 | 50 | 56 | 50 | 60 | ... | 60 | 60 | 48 | 60 | 32 | 56 | 26 | 56 | ... | 14 | ... | 45 |
| Vermont..... | 46 | ... | 52 | ... | 52 | ... | 60 | 60 | 60 | 60 | 48 | 60 | 32 | 56 | ... | ... | 50 | ... | ... | 45 |
| Virginia..... | 52 | 70 | 56 | 50 | 57 | 56 | 60 | 55 | 60 | 60 | 48 | 60 | 32 | 56 | 28 | 56 | 60 | 14 | 80 | 45 |
| Wisconsin..... | 50 | 70 | 56 | ... | 50 | ... | 60 | 42 | ... | 60 | 48 | 60 | 32 | 56 | 28 | 55 | 60 | ... | ... | 45 |

CANALS — THEIR LENGTH AND COST.

The following table comprises the canals of the United States and Canada of which the cost has exceeded \$1,000,000 each :

| NAME. | State. | Length in miles. | Cost. |
|---------------------------------|----------------|---------------------|-------------|
| Erie | New York. | 363 | \$7,143,789 |
| Champlain | " | 63 | 1,257,604 |
| Chenango | " | 97 | 2,419,956 |
| Central Division, public..... | Penna..... | 173 | 5,307,252 |
| Western " " | " | 104 | 3,096,522 |
| Susquehanna Division, public .. | " | 39 | 1,039,256 |
| N. Branch " " .. | " | 73 | 1,096,178 |
| N. Branch Extension " .. | " | 90 | 3,528,302 |
| Delaware Division " .. | " | 60 | 1,275,715 |
| Schuylkill " private.. | " | 108 | 2,500,176 |
| Lehigh " " .. | " | 85 | 4,455,099 |
| Union " " .. | " | 82 | ..... |
| Del. and Hudson..... | N. Y. & Pa. | 108 | 2,500,000 |
| " " enlarged | " | 108 | 6,500,000 |
| Del. and Raritan feeder..... | New Jersey. | 43 | 2,844,103 |
| Morris and Essex..... | " | 101 | 3,100,000 |
| Chesapeake and Delaware..... | Del. & Md. | 13½ | 2,750,000 |
| Chesapeake and Ohio | Maryland .. | 191 | 10,000,000 |
| Ohio and Erie..... | Ohio | 307 | 4,695,824 |
| Miami | " | 178 | 3,750,000 |
| Sandy and Beaver | " | 76 | 1,500,000 |
| James River and Kanawha..... | Virginia.... | 147 | 5,020,050 |
| Wabash and Erie..... | Indiana | 379 | ..... |
| " " | " | 90 | 3,057,120 |
| Illinois and Michigan..... | Illinois | 102 | 8,654,337 |
| Welland | Canada..... | 36 | 7,000,000 |
| St. Lawrence..... | " | 10 | 1,000,000 |
| Cornwall..... | " | 12 | 2,000,000 |
| Beauharnois | " | 11 | 1,500,000 |
| Lachine..... | " | 8½ | 2,000,000 |

Horses, Mules and Asses on the Farms in the United States.

The figures of last census show that in the states and territories there were on hand, June 1, 1890, 14,976,017 horses, 2,246,936 mules, and 49,109 asses; that in 1889 there were foaled 1,814,404 horses, 157,105 mules, and 7,957 asses; that there were sold in the same year 1,309,557 horses, 329,995 mules, and 7,271 asses, and that there died from all causes 765,211 horses, mules and asses during the same period.

THE BIGGEST THINGS.

Interesting Facts Useful When You Get Into an Argument.

The largest theater in the world is the new Opera-house in Paris. It covers nearly three acres of ground; its cubic mass is 4,287,000 feet; it cost about 100,000,000 francs. The largest suspension bridge is the one between New York City and Brooklyn; the length of the main span is 1,595 feet 6 inches; the entire length of the bridge is 5,980 feet. The loftiest active volcano is Popocatepetl, "smoking mountain"—thirty-five miles southwest of Puebla, Mexico; it is 17,748 feet above the sea level, and has a crater three miles in circumference, and 1,000 feet deep. The longest span of wire in the world is used for a telegraph in India over the River Kistnah. It is more than 6,000 feet in length, and is 1,200 feet high. The largest ship in the world is the Great Eastern. She is 680 feet long, 83 feet broad, and 60 feet deep, being 28,627 tons burden, 18,915 gross, and 13,334 net register.

The greatest fortress, from a strategical point of view, is the famous stronghold of Gibraltar. It occupies a rocky peninsula jutting out into the sea, about three miles long and three-quarters of a mile wide. One central rock rises to a height of 1,435 feet above the sea level. Its northern face is almost perpendicular, while its east side is full of tremendous precipices. On the south it terminates in what is called Europa Point. The west side is less steep than the east, and between its base and the sea is the narrow, almost level span on which the town of Gibraltar is built. The fortress is considered impregnable to military assault. The regular garrison in time of peace numbers about 7,000.

The biggest cavern is the Mammoth Cave, in Edmonson County, Kentucky. It is near Green River, about six miles from Cave City, and twenty-eight from Bowling Green. The cave consists of a succession of irregular chambers, some of which are large, situated on different levels. Some of these are traversed by the navigable branches of the subterranean Echo River. Blind fish are found in its waters.

The longest tunnel in the world is that of the St. Gothard, on the line of railroad between Lucerne and Milan. The summit of the tunnel is 900 feet below the surface at Andermatt, and 6,600 feet beneath the peak of Kastlehorn, of the St. Gothard group. The tunnel is $26\frac{1}{2}$ feet wide, and is 18 feet 10 inches from the floor to the crown of the arched roof. It is $9\frac{1}{2}$ miles long.

The biggest trees in the world are the mammoth trees of California. One of a grove in Tulare County, according to measurements made by members of the State Geological Survey, was shown to be 276 feet in height, 108 feet in circumference at base, and 76 feet at a point 12 feet above ground. Some of the trees are 376 feet high, and 34 feet in diameter. Some of the largest that have been found indicate an age of from 2,000 to 2,500 years.

The largest library is the Bibliotheque National, in Paris, founded by Louis XIV. It contains 1,400,000 volumes, 300,000 pamphlets, 175,000 manuscripts, 300,000 maps and charts, and 150,000 coins and medals. The collection of engravings exceeds 1,300,000, contained in some 10,000 volumes. The portraits number about 100,000.

The largest desert is that of Sahara, a vast region of Northern Africa, extending from the Atlantic Ocean on the west to the valley of the Nile on the east. The length from east to west is about 3,000 miles, its average breadth about 900 miles, its area about 2,000,000 square miles. Rain falls in torrents in the Sahara at intervals of five, ten and twenty years. In summer the heat during the day is excessive, but the nights are often cold.

**A CALENDAR FOR ASCERTAINING ANY DAY OF THE
WEEK FOR ANY GIVEN TIME WITHIN THE PRES-
ENT CENTURY.**

| Years 1801 to 1900. | | | | | | | | | | | | Jan. | Feb. | Mar. | Apr. | May | June | July | Aug. | Sept. | Oct. | Nov. | Dec. | | | |
|---------------------|------|------|------|------|------|------|------|------|------|------|-------------|------|------|------|------|-----|------|------|------|-------|------|------|------|----|---|---|
| 1801 | 1807 | 1818 | 1829 | 1835 | 1846 | 1857 | 1863 | 1874 | 1885 | 1891 | 4 | 7 | 7 | 3 | 5 | 1 | 3 | 6 | 2 | 4 | 7 | 2 | | | | |
| 1802 | 1813 | 1819 | 1830 | 1841 | 1847 | 1858 | 1869 | 1875 | 1886 | 1897 | 5 | — | 1 | 4 | 6 | 2 | 4 | 7 | 3 | 5 | 1 | 3 | | | | |
| 1803 | 1814 | 1825 | 1831 | 1842 | 1853 | 1859 | 1870 | 1881 | 1887 | 1898 | 6 | 2 | 2 | 5 | 7 | 3 | 5 | 1 | 4 | 6 | 2 | 4 | | | | |
| 1805 | 1811 | 1822 | 1833 | 1839 | 1850 | 1861 | 1867 | 1878 | 1889 | 1895 | 2 | 5 | 5 | 1 | 3 | 6 | 1 | 4 | 7 | 2 | 5 | 7 | | | | |
| 1806 | 1817 | 1823 | 1834 | 1845 | 1851 | 1862 | 1876 | 1879 | 1890 | .... | 3 | 6 | 6 | 2 | 4 | 7 | 2 | 5 | 1 | 3 | 6 | 1 | | | | |
| 1809 | 1815 | 1826 | 1837 | 1843 | 1854 | 1865 | 1871 | 1882 | 1893 | 1899 | 7 | 3 | 3 | 6 | 1 | 4 | 6 | 2 | 5 | 7 | 3 | 5 | | | | |
| 1810 | 1821 | 1827 | 1838 | 1849 | 1855 | 1866 | 1877 | 1883 | 1894 | 1900 | 1 | 4 | 4 | 7 | 2 | 5 | 7 | 3 | 6 | 1 | 4 | 6 | | | | |
| | | | | | | | | | | | LEAP YEARS. | | | | .. | 29 | .. | .. | .. | .. | .. | .. | .. | .. | | |
| | | | | | | | | | | | 1804 | 1832 | 1860 | 1888 | 7 | 3 | 4 | 7 | 2 | 5 | 7 | 3 | 6 | 1 | 4 | 6 |
| | | | | | | | | | | | 1808 | 1836 | 1864 | 1892 | 5 | 1 | 2 | 5 | 7 | 3 | 5 | 1 | 4 | 6 | 2 | 4 |
| | | | | | | | | | | | 1812 | 1840 | 1868 | 1896 | 3 | 6 | 7 | 3 | 5 | 1 | 3 | 6 | 2 | 4 | 7 | 2 |
| | | | | | | | | | | | 1816 | 1844 | 1872 | .... | 1 | 4 | 5 | 1 | 3 | 6 | 1 | 4 | 7 | 2 | 5 | 7 |
| | | | | | | | | | | | 1820 | 1848 | 1876 | .... | 6 | 2 | 3 | 6 | 1 | 4 | 6 | 2 | 5 | 7 | 3 | 5 |
| | | | | | | | | | | | 1824 | 1852 | 1880 | .... | 4 | 7 | 1 | 4 | 6 | 2 | 4 | 7 | 3 | 5 | 1 | 3 |
| | | | | | | | | | | | 1828 | 1856 | 1884 | .... | 2 | 5 | 6 | 2 | 4 | 7 | 2 | 5 | 1 | 3 | 6 | 1 |

EXAMPLE.—To ascertain any day of the week in any year of the present century, look in the table of years for the year required, and under the months required, which refer to the corresponding figures at the head of the column of days below. For Example: Look what day of the week May 4 was on in the year 1872, in the table as look for 1872, and in a parallel line under May, is figure 3, which is to column 3, in which it will be seen that May 4 falls on Saturday.

NOTE.—To ascertain any day of the week in any year of the present century, first look in the table of years for the year required, and under the months are figures which refer to the corresponding figures at the head of the columns of days below. *For Example:* To know what day of the week May 4 will be on in the year 1872, in the table of years look for 1872, and in a parallel line, under May, is figure 3, which directs to column 3, in which it will be seen that May 4 falls on Saturday.

| 1 | 2 | 3 | 4 | 5 | 6 | 7 |
|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|-----------------|
| Monday... 1 | Tuesday... 1 | Wednesday... 1 | Thursday... 1 | Friday... 1 | Saturday... 1 | Sunday... 1 |
| Tuesday... 2 | Wednesday... 2 | Thursday... 2 | Friday... 2 | Saturday... 2 | Sunday... 2 | Monday... 2 |
| Wednesday... 3 | Thursday... 3 | Friday... 3 | Saturday... 3 | Sunday... 3 | Monday... 3 | Tuesday... 3 |
| Thursday... 4 | Friday... 4 | Saturday... 4 | Sunday... 4 | Monday... 4 | Tuesday... 4 | Wednesday... 4 |
| Friday... 5 | Saturday... 5 | Sunday... 5 | Monday... 5 | Tuesday... 5 | Wednesday... 5 | Thursday... 5 |
| Saturday... 6 | Sunday... 6 | Monday... 6 | Tuesday... 6 | Wednesday... 6 | Thursday... 6 | Friday... 6 |
| Sunday... 7 | Monday... 7 | Tuesday... 7 | Wednesday... 7 | Thursday... 7 | Friday... 7 | Saturday... 7 |
| Monday... 8 | Tuesday... 8 | Wednesday... 8 | Thursday... 8 | Friday... 8 | Saturday... 8 | Sunday... 8 |
| Tuesday... 9 | Wednesday... 9 | Thursday... 9 | Friday... 9 | Saturday... 9 | Sunday... 9 | Monday... 9 |
| Wednesday... 10 | Thursday... 10 | Friday... 10 | Saturday... 10 | Sunday... 10 | Monday... 10 | Tuesday... 10 |
| Thursday... 11 | Friday... 11 | Saturday... 11 | Sunday... 11 | Monday... 11 | Tuesday... 11 | Wednesday... 11 |
| Friday... 12 | Saturday... 12 | Sunday... 12 | Monday... 12 | Tuesday... 12 | Wednesday... 12 | Thursday... 12 |
| Saturday... 13 | Sunday... 13 | Monday... 13 | Tuesday... 13 | Wednesday... 13 | Thursday... 13 | Friday... 13 |
| Sunday... 14 | Monday... 14 | Tuesday... 14 | Wednesday... 14 | Thursday... 14 | Friday... 14 | Saturday... 14 |
| Monday... 15 | Tuesday... 15 | Wednesday... 15 | Thursday... 15 | Friday... 15 | Saturday... 15 | Sunday... 15 |
| Tuesday... 16 | Wednesday... 16 | Thursday... 16 | Friday... 16 | Saturday... 16 | Sunday... 16 | Monday... 16 |
| Wednesday... 17 | Thursday... 17 | Friday... 17 | Saturday... 17 | Sunday... 17 | Monday... 17 | Tuesday... 17 |
| Thursday... 18 | Friday... 18 | Saturday... 18 | Sunday... 18 | Monday... 18 | Tuesday... 18 | Wednesday... 18 |
| Friday... 19 | Saturday... 19 | Sunday... 19 | Monday... 19 | Tuesday... 19 | Wednesday... 19 | Thursday... 19 |
| Saturday... 20 | Sunday... 20 | Monday... 20 | Tuesday... 20 | Wednesday... 20 | Thursday... 20 | Friday... 20 |
| Sunday... 21 | Monday... 21 | Tuesday... 21 | Wednesday... 21 | Thursday... 21 | Friday... 21 | Saturday... 21 |
| Monday... 22 | Tuesday... 22 | Wednesday... 22 | Thursday... 22 | Friday... 22 | Saturday... 22 | Sunday... 22 |
| Tuesday... 23 | Wednesday... 23 | Thursday... 23 | Friday... 23 | Saturday... 23 | Sunday... 23 | Monday... 23 |
| Wednesday... 24 | Thursday... 24 | Friday... 24 | Saturday... 24 | Sunday... 24 | Monday... 24 | Tuesday... 24 |
| Thursday... 25 | Friday... 25 | Saturday... 25 | Sunday... 25 | Monday... 25 | Tuesday... 25 | Wednesday... 25 |
| Friday... 26 | Saturday... 26 | Sunday... 26 | Monday... 26 | Tuesday... 26 | Wednesday... 26 | Thursday... 26 |
| Saturday... 27 | Sunday... 27 | Monday... 27 | Tuesday... 27 | Wednesday... 27 | Thursday... 27 | Friday... 27 |
| Sunday... 28 | Monday... 28 | Tuesday... 28 | Wednesday... 28 | Thursday... 28 | Friday... 28 | Saturday... 28 |
| Monday... 29 | Tuesday... 29 | Wednesday... 29 | Thursday... 29 | Friday... 29 | Saturday... 29 | Sunday... 29 |
| Tuesday... 30 | Wednesday... 30 | Thursday... 30 | Friday... 30 | Saturday... 30 | Sunday... 30 | Monday... 30 |
| Wednesday... 31 | Thursday... 31 | Friday... 31 | Saturday... 31 | Sunday... 31 | Monday... 31 | Tuesday... 31 |

THE LIBERTY BELL

The *Philadelphia News* gives some interesting particulars of the history of the Independence Bell:

The order for the bell was given in 1751. The State House of Pennsylvania, in Philadelphia, work on which had been suspended for a number of years, was then approaching completion. The lower floors were already occupied by the Supreme Court in the chamber, while in the other assembled the Freemen of the Province of Pennsylvania, then consisting of one body. A committee was appointed by the Freemen, with Peter Norris as chairman, and empowered to have a new bell cast for the building. The commission for the bell was in the same year awarded to Robert Charles, of London, the specification being that the bell should weigh about 2,000 pounds and cost £100 sterling. It was to be made by the best workmen, to be examined carefully before being shipped, and to contain, in well-shaped letters around it, the inscription: "By order of the Province of Pennsylvania, for the State House in the City of Philadelphia, 1752." An order was given to place underneath this the fatal and prophetic words from Leviticus xxv. 10: "Proclaim liberty throughout the land and to all the inhabitants thereof."

The reason for the selection of this text has been a subject of much conjecture, but the true reason is apparent when the full text is read. It is as follows: "And ye shall hallow the fiftieth year and proclaim liberty throughout the land and to all the inhabitants thereof." In selecting the text the good Quakers had in memory the arrival of William Penn and their forefathers more than half a century before.

In August, 1752, the bell arrived, but though in apparent good order, it was cracked by a stroke of the clapper while being tested. It could not be sent back,

as the captain of the vessel who had brought it over could not take it on board. Two skillful men undertook to recast the bell, which, on being opened, revealed a bell which pleased very much. But it was also found to be defective. The original bell was considered too high, and a quantity of copper was added to the composition, but too much copper was added. There were a great many witticisms on account of the second failure, and the ingenious workmen undertook to recast the bell, which they successfully did, and it was placed in condition in June, 1753.

On Monday, the 8th of July (not the 4th), at noon, true to its motto, it rang out the memorable message of "Liberty throughout the land and to all the inhabitants thereof."

For fifty years the bell continued to be rung on every festival and anniversary until it eventually cracked.

An ineffectual attempt was made to cause it to continue serviceable by enlarging the cause of its dissonance and chipping the edges. It was removed from its position in the tower to a lower story, and only used on occasions of public sorrow, such as the death of ex-Presidents and statesmen. Subsequently it was placed on the original timbers in the vestibule of the State House, and in 1873 it was suspended in a prominent position immediately beneath where a larger bell presented to the city in 1866 now proclaims the passing hours.

CHOLERA.

CHOLERA.—Known in its native country, India, under the names Morshi, Mordeshi and Visuchika; first appeared in Europe in 1831; was first introduced into Canada and the United States in 1832, spread as an epidemic, and lasted in some localities until 1835.

Second European epidemic began in 1847; reached New York and New Orleans in December, 1848; Canada in April, 1849; continuing epidemically in the United States until 1852; almost died out in Europe at the close of 1850, but broke out afresh in 1852, and was again imported into this country in 1853, not entirely disappearing until 1855.

Third epidemic in Europe began in 1865; cases at Ward's Island, New York, in November, but the contagion not fairly introduced into the United States until the spring of 1866; died out here in 1867, and in most European countries in 1869-70; a fresh outbreak there in 1871 reached this country again in February, 1873, when it spread from New Orleans and involved nineteen States in eight months.

Fourth epidemic followed a violent outbreak in Egypt in 1883 (the "Damietta outbreak"); cases at Marseilles in October, but existence concealed; declared epidemic at Toulon in June, 1884; spread throughout Southern France, thence into Italy; existence suspected in Spain, but denied during the winter of 1884-85, but during the spring and summer of 1885 it invaded nearly all parts of the kingdom, causing over one hundred thousand deaths; attacked Italy again during the autumn, and at the close of 1885 was reported in Venice, Trieste and in the province of Brittany. Cases were reported in various other parts of Europe, but no spread resulted, except in the countries named. So far as known, only one infected vessel arrived in this country; deaths from cholera had occurred during the voyage, but the vessel was properly quarantined for on her arrival in New York Bay, latter part of September, 1885.

The first European epidemic lasted *seven* years — from 1831 to 1837, inclusive — dying out during cold weather, and reappearing in spring in previously infected localities, and thence spreading to localities which had previously escaped; in many instances more severely scourging localities in the second or subsequent years than during the first visitation. The second epidemic lasted *seventeen* years — 1847 to 1863 — with a remarkable intermission in 1851-52, and numerous fluctuations of intensity, the severest in 1849-50 and in 1853-55. The third lasted *ten* years — 1865 to 1874 — with a remission in 1869-70, and a fresh outbreak in 1871. In all of them the disease was brought to the United States within two years after it had become epidemic in countries in close commercial relation with this country, and in each epidemic there were several distinct importations of the contagion.

DEDUCTION — *That whenever, and as long as Asiatic*

cholera exists on the European continent, this country is in danger of a cholera epidemic.

Three things are necessary for a cholera epidemic:

First, the cholera poison; second, filthy local conditions of air, soil and water; third, individual predisposition. If, by quarantine, the poison can be kept out of the country, the other two factors might be disregarded. But since the most rigidly enforced quarantines have heretofore failed to prevent the introduction of the poison, it is essential that such measures of local and individual sanitation be enforced as will secure cleanliness of person, of habitation and of surroundings—of air, water and soil. Certain of these conditions the individual can only indirectly control, but for his own immediate environment, his dwelling and premises and his personal hygiene, he is himself responsible. And these conditions have much to do with determining the individual predisposition.

Cholera is most surely guarded against by keeping the body clean and well nourished, and the mind equable and contented; underfeeding, anxiety, overwork, exposure to extremes of temperature, intemperance in eating or drinking—all tend to reduce the resistance of the system to the influence of any morbid poison, and more especially that of cholera.

If cholera should, unfortunately, make its appearance, the following most important precaution should be observed:

No diarrhea, or even lax condition of the bowels, should be disregarded while there is a single case of cholera in the country. An attack of cholera is usually preceded by a loose, painless diarrhea, although less frequently one may pass from apparently perfect health after a single dejection into the state of cholera collapse. But, as a rule, there is the premonitory stage above indicated, and which may last from one to five days. Such attacks, if promptly and properly treated, may almost invariably be cured, but if neglected, may develop into malignant cholera.

TREATMENT.—First, absolute rest; second, a teaspoonful of the following mixture every two hours until the diarrhea is checked:

CHOLERA MIXTURE.

Aromatic sulphuric acid. One ounce.

Paregoric. Three ounces.

DOSE.—One teaspoonful in four tablespoonfuls of water.

This is the simplest and most generally useful combination, and should be kept ready for use in the house, office, store and workshop during a cholera season.

A good doctor should be called, but the above treatment is to be followed until the doctor arrives. Meantime take no food or stimulants of any kind, but allay thirst with ice.

PREVENTIVE.—In addition to ordinary prudence in diet and drink, especial care should be taken as to the quality of drinking-water used. If not known to be absolutely pure, add a teaspoonful of aromatic sulphuric acid (elixir of vitriol) to one quart of water. Epidemics of cholera have been arrested, when every other means failed, by using water thus acidulated. It may be flavored with lemons and sweetened.

There is good reason for believing that the cholera poison is absolutely destroyed by mineral acids. It would be well, therefore, to confine the drink exclusively to this mineral-acid lemonade so long as there is any danger of cholera. No other single precaution is of so much importance as this.

POISONS—ANTIDOTES AND TREATMENT.

Immediately on discovering that poison has been swallowed, send for a physician with all possible haste. Until his arrival, the treatment should either be with a view to removing the poison by an emetic or neutralizing its effects by an antidote.

EMETICS.—Ground mustard, a tablespoonful in a tumbler of warm water, is an emetic usually quickly procured. Give the patient one-fourth of it at once, and follow with a cup of warm water. Repeat the dose every minute or two until vomiting takes place. Give tepid water freely. Mustard has a special value in most cases where an emetic is needed, as it is also stimulating in its effects.

Common salt is also used as an emetic, a teacup of water with as much salt as the water will dissolve being given every few moments until vomiting occurs.

Tickling the throat with a feather, or with the finger, is a valuable aid to the action of an emetic.

After vomiting takes place, the white of eggs in warm water, warm milk, gum-arabic water, or flour and water, may be given to further cleanse the stomach and to soothe the irritated mucous membrane.

The following table gives the common poisons and suggestions as to the treatment for each, and, together with the above, may be of assistance until the arrival of a physician:

ACIDS—MINERAL.—Chalk, magnesia (plaster off wall), solution of cooking soda, or saleratus; then barley-water, linseed-tea, or olive-oil.

ACONITE.—Emetics, stimulants external and internal.

ANTIMONY.—Strong tea in large quantities.

AQUA FORTIS.—Same as *Acids, Mineral*.

ARSENIC.—Give milk in large quantities, or the white of eggs, or flour and water. Follow with stimulants.

ATROPIA.—Same as *Belladonna*.

ARGENTI NIT.—Large teaspoonful of salt in cup of water; repeat in ten minutes; then give castor-oil and linseed-tea or barley-water.

BAD FISH OR OTHER FOOD.—Emetics; then a large dose of castor-oil with some warm spice. Mustard-plaster to pit of stomach if necessary.

BED-BUG POISON.—Same as *Corrosive Sublimate*.

BLUE VITRIOL.—Same as *Cupri Sulph.* and *Copper*.

CANNABIS INDICA.—Hot brandy and water, lemon-juice, vegetable acids, vinegar; allow patient to sleep; blister to nape of neck.

CANTHARIDES.—Emetics, followed by barley-water, flaxseed-tea, or other soothing drinks.

CARBOLIC ACID.—Castor or olive-oil.

CAUSTIC POTASH.—Same as *Potash*.

CAUSTIC SODA.—Same as *Potash*.

CHLORINE WATER.—Albumen (white of egg), milk, flour.

CHLOROFORM.—Fresh air; incline the body so as to get the head as low as possible; pull the tongue forward; dash cold water on the chest at intervals and excite respiration by any other means.

CHLORIDE OF TIN.—Milk in large quantities with magnesia, chalk or whiting in it; raw eggs beaten up with water or milk.

CHLORAL HYDRATE.—Same as *Chloroform*.

CHLORIDE OF ZINC.—Milk with white of eggs in it. Large Doses.

COBALT.—Same as *Arsenic*.

COLCHICUM.—Emetics; then barley water, linseed-tea, etc. If stupor (*coma*) be present, give brandy, coffee, ammonia.

CONIUM.—Emetics, followed by stimulants externally and internally.

COPPER.—Milk and whites of eggs; large quantities; then strong tea. Don't give vinegar.

COPPERAS.—Emetics. Mucilaginous drinks.

CORROSIVE SUBLIMATE.—White of eggs in a little water. Repeat dose at intervals of two or three minutes until patient vomits. Use milk or flour and water if you can't get eggs.

CROTON OIL.—Emetics; then flaxseed-tea, gum-arabic water, slippery elm, etc.

CUPRI SULPH.—Whites of eggs. Same as *Copper*.

CYANIDE OF POTASSIUM.—Same as *Prussic Acid*.

DIGITALIS.—Emetics. Keep the patient lying down. Stimulants externally and internally.

FOWLER'S SOLUTION.—Same as *Arsenic*.

HASCHISCH.—Same as *Cannabis Indica*.

HEMLOCK.—Same as *Conium*.

HENBANE.—Same as *Hyoscyamus*.

HYDROCYANIC ACID.—Fresh air and artificial respiration, with dashes of cold water.

HYOSCYAMUS.—Emetics; lemon-juice stimulants external and internal.

INDELIBLE INK.—Same as *Argenti Nit*.

INDIAN HEMP.—Same as *Cannabis Indica*.

IODINE.—Emetics; starch or flour in water; barley-water or other demulcent drinks.

IVY POISONING.—Apply soft-soap freely to affected parts; or bathe the poisoned skin frequently with weak tincture of belladonna.

LAUDANUM.—Same as *Opium*.

LEAD.—Two ounces of Epsom salts in a pint of water; wineglassful every ten minutes until it operates freely. Afterward milk.

LEAD SALTS.—Same as *Lead*.

LEAD WATER.—Same as *Lead*.

LOBELIA.—Stimulants externally and internally.

LUNAR CAUSTIC.—Same as *Argenti Nit.*

LYE.—*Potash*.

MERCURY.—Same as *Corrosive Sublimate*.

MINERAL ACID.—Same as *Acids, Mineral*.

MORPHIA.—Same as *Opium*.

MURIATIC ACID.—Same as *Acids, Mineral*.

NITRATE OF SILVER.—Same as *Argenti Nit.*

NITER.—Same as *Saltpeter*.

NITRIC ACID.—Same as *Acids, Mineral*.

NUX VOMICA.—Emetics, artificial respiration, linseed tea or barley-water; to an adult 30 drops of laudanum to relieve the spasms.

OIL OF BITTER ALMONDS.—Same as *Prussic Acid*.

OIL OF VITRIOL.—Same as *Acids, Mineral*.

OPIUM.—Emetics (10 grains of sulphate of copper if possible); after vomiting, which must be induced quickly, give plenty of strong coffee with brandy, put mustard plasters around calves of legs; keep patient aroused by walking around, dashing cold water in face, heating soles of feet, or whipping body with towels wrung out in cold water. If the patient is allowed to go to sleep before the effect of the opium has passed off, death will result.

OXALIC ACID.—Same as *Acids, Mineral*.

PAREGORIC.—Same as *Opium*.

PAUL'S GREEN.—Same as *Arsenic*.

PHOSPHORUS.—Emetics, large quantities of tepid water, with magnesia, chalk, whiting, or even flour stirred in it.

POTASH.—Vinegar and water, oranges, lemons, sour

- beer, cider, or sour fruit; then give oil—linseed or olive.
- PRUSSIC ACID.—Sal-volatile and water; apply smelling-salts to nostrils; dash cold water in face; stimulants.
- RATSBANE.—Same as *Arsenic*.
- RED PRECIPITATE.—Same as *Corrosive Sublimate*.
- RED LEAD.—Same as *Lead*.
- "ROUGH ON RATS."—Same as *Arsenic*.
- SALTPETRE.—Flour and water in large doses; linseed or sweet oil.
- SALTS OF TIN.—Milk in large quantities.
- SILVER, NITRATE OF.—Same as *Argenti Nit.*
- SPANISH FLY.—Same as *Cantharides*.
- SPIRITS OF SALTS.—Same as *Acids, Mineral*.
- STRAMONIUM.—Same as *Belladonna*.
- STRYCHNINE.—Same as *Nux Vomica*.
- SUGAR OF LEAD.—Same as *Lead Salts*.
- SULPHURIC ACID.—Same as *Acids, Mineral*.
- SULPHATE OF ZINC.—Same as *Zinc Salts*.
- TARTAR EMETIC.—Same as *Antimony*.
- TARTARIZED ANTIMONY.—Same as *Antimony*.
- TOBACCO.—Emetics; stimulants external and internal.
- VERDIGRIS.—Same as *Copper*.
- VERMILION.—Same as *Corrosive Sublimate*.
- VOLATILE ALKALI.—Same as *Potash*.
- WHITE PRECIPITATE.—Same as *Arsenic*.
- WHITE VITRIOL.—Same as *Zinc Salts*.
- ZINC SALTS.—Give milk with whites of eggs freely; afterward warm barley-water or linseed-tea.

Live Stock on Ranges, in the United States.

It is found that in June, 1890, there were upon the ranges 517,128 horses, 5,433 mules, 14,109 asses or burros, 6,828,182 cattle, 6,676,902 sheep, and 17,276 swine, with sales of horses, in 1889, amounting to \$1,418,205; of cattle, \$17,913,712; of sheep, \$2,669,663, and of swine, \$27,132. The total number of men reported upon ranges in care of this stock is 15,390. The industry is found to be more generally prosperous at this time than for several years previous.

CONTAGIOUS AND ERUPTIVE DISEASES.

It will often relieve a mother's anxiety to know how long after a child has been exposed to contagious disease that there is danger the disease has been contracted. The following table gives the *period of incubation* — or anxious period — and other information concerning the more important diseases.

| Disease. | Symptoms usually appear. | Anxious period ranges from | Patient is infectious. |
|--------------------|--------------------------|----------------------------|---|
| Chicken-Pox..... | On 14th day | 10-18 days. | Until all scabs have fallen off. |
| Diphtheria | " 2d day | 2- 5 days. | 14 days after disappearance of membrane |
| Measles..... | " 14th day | 10-14 days. | *Until scaling and cough have ceased. |
| Mumps..... | " 19th day | 16-24 days. | 14 days from commencement. |
| Rotheln | " 14th day | 12-20 days. | 10-14 days from commencement. |
| Scarlet Fever..... | " 4th day | 1- 7 days. | Until all scaling has ceased. |
| Small-Pox | " 12th day | 1-14 days. | Until all scabs have fallen off. |
| Typhoid Fever.... | " 21st day | 1-28 days. | Until diarrhea ceases. |
| Whooping-Cough.. | " 14th day | 7-14 days. | †Six weeks from beginning to whoop. |

* In measles the patient is infectious three days before the eruption appears.

† In whooping-cough the patient is infectious during the primary cough, which may be three weeks before the whooping begins.

The following points may help to determine the nature of a suspicious illness:

| Rash or Eruption. | Appearance. | Disease. | Duration in days. | Remarks. |
|---|--|------------------|-------------------|--|
| Small rose pimples changing to vesicles..... | 2d day of fever or after 24 hours' illness..... | CHICKEN-POX..... | 6-7 | Scabs form about 4th day of fever. |
| Diffuse redness and swelling..... | 2d or 3d day of illness..... | ERYSIPELAS..... | | |
| Small red dots like flea-bites..... | 4th day of fever or after 72 hours' illness..... | MEASLES..... | 6-10 | Rash fades on 7th day. |
| Bright scarlet, diffused.... | 2d day of fever or after 24 hours' illness..... | SCARLET FEVER.. | 8-19 | Rash fades on 5th day. |
| Small red pimples changing to vesicles, then pustules | 3d day of fever or after 48 hours' illness..... | SMALL-POX..... | 14-21 | Scabs form 9th or 10th day, fall off about 14th. |
| Rose colored spots, scattered..... | 7th to 14th day.... | TYPHOID FEVER .. | 22-30 | Accompanied by diarrhea. |

DIGESTION.

Average time required for the digestion of various articles of food :

| | <i>Hours.</i> | <i>Min.</i> |
|---|---------------|-------------|
| Apples, sweet (boiled)..... | 2 | 30 |
| Barley (boiled)..... | 2 | |
| Beans, Lima (boiled)..... | 2 | 30 |
| Beef (roasted)..... | 3 | |
| Beef (fried)..... | 4 | |
| Beef, salt (boiled)..... | 2 | 45 |
| Bread..... | 3 | 30 |
| Butter..... | 3 | 30 |
| Cheese..... | 3 | 30 |
| Chicken (fricasseed)..... | 2 | 40 |
| Custard (baked)..... | 2 | 45 |
| Duck (roasted)..... | 4 | |
| Eggs (raw)..... | 2 | |
| Eggs (soft-boiled)..... | 3 | |
| Eggs (hard-boiled)..... | 3 | 30 |
| Eggs (fried)..... | 3 | 30 |
| Fish, various kinds (raw, boiled, fried)..... | 2 | 44 |
| Fowl (roast)..... | 4 | |
| Hashed meat and vegetables (warm)..... | 2 | 30 |
| Lamb (boiled)..... | 2 | 30 |
| Milk (raw)..... | 2 | 15 |
| Milk (boiled)..... | 2 | |
| Mutton (boiled)..... | 3 | |
| Mutton (roast)..... | 3 | 15 |
| Oysters (roast)..... | 3 | 15 |
| Oysters (stewed)..... | 3 | 3' |
| Pigs' feet, soused (boiled)..... | 1 | |
| Potatoes (baked)..... | 2 | 30 |
| Pork, salt (stewed)..... | 3 | |
| Pork (roast)..... | 3 | 15 |
| Rice (boiled)..... | 1 | |
| Sago (boiled)..... | 1 | 45 |
| Soup, barley..... | 1 | 30 |
| Soup, chicken, etc. (average)..... | 3 | 15 |
| Tripe, soused (boiled)..... | 1 | |
| Turkey (roast)..... | 2 | 30 |
| Veal (boiled)..... | 4 | |
| Veal (fried)..... | 4 | 30 |

AMERICAN AND IMPORTED PUBLICATIONS (IN ENGLISH), FOR THE YEAR 1890.

Not including Government Works or Cheap Libraries of
a lower order.

| | | | |
|------------------------------|-------|------------------------------|-------|
| Fiction..... | 1,118 | Biography..... | 218 |
| Law | 438 | Five Arts..... | 135 |
| Juvenile Books..... | 408 | Physical and Math. Science.. | 93 |
| Literary, History and Misc. | 183 | Useful Arts..... | 133 |
| Theology and Religion... .. | 467 | Sports and Amusements.... | 82 |
| Education..... | 399 | Domestic and Rural..... | 29 |
| Poetry and the Drama..... | 168 | Humor and Satire..... | 42 |
| History..... | 153 | Mental and Moral Philos. ... | 11 |
| Medical Science, Hygiene... | 117 | | |
| Social and Political Science | 183 | Grand Total..... | 4,559 |
| Description, Travel..... | 162 | | |

BRITISH PUBLICATIONS, the same year, 5,735 volumes.

Dates of First Occurrences.

- Postoffices were first established in 1464.
 Printed musical notes were first used in 1473.
 The first watches were made at Nuremberg in 1477.
 America was discovered in 1492.
 The first printing press was set up at Copenhagen in 1493.
 Durer gave the world a prophecy of future wood-engraving
 in 1527.
 Jergens set the spinning wheel in motion in 1530.
 Modern needles first came into use in 1545.
 The first knives were used in England, and the first wheeled
 carriages in France, in 1559.
 Religious liberty was granted to the Huguenots in France in
 1562, and was followed by the massacre of St. Bartholomew in 1572.
 Cervantes wrote Don Quixote in 1573.
 The first newspaper was published in England in 1588.
 Telescopes were invented in 1590.
 The first printing-press in the United States was introduced in
 1629.
 The first air-pump was made in 1650.
 The first newspaper advertisement appeared in 1652.
 The first copper cent was coined in New Haven in 1687.
 The first steam-engine on this continent came from England in
 1753.
 The first balloon ascent was made in 1783.
 The first society for the Promotion of Christian Knowledge was
 organized in 1698.
 The first attempt to manufacture pins in this country was made
 soon after the war of 1812.
 The first prayer-book of Edward VI. came into use by authority
 of Parliament on Whit-Sunday, 1549.

Glass windows first introduced into England in the eighth century.

The first steamboat plied the Hudson in 1807.

The first sawmakers' anvil was brought to America in 1819.

The first use of a locomotive in this country was in 1820.

Kerosene was first used for lighting purposes in 1826.

The first horse railroad was built in 1826-7.

The first lucifer match was made in 1829.

The first iron steamship was built in 1830.

The first steel pen was made in 1830.

Omnibuses were introduced in New York in 1830.

Ships were first "copper-bottomed" in 1837.

Envelopes were first used in 1839.

Anæsthesia was discovered in 1844.

Coaches were first used in England in 1569.

The first steel-plate was discovered in 1830.

The Franciscans arrived in England in 1224.

The entire Hebrew Bible was printed in 1488.

Gold was first discovered in California in 1848.

The first telescope was used in England in 1608.

Christianity was introduced into Japan in 1549.

First almanac printed by George Von Furbach in 1460.

Percussion arms were used in the United States Army in 1830.

The first glass factory in the United States was built in 1780.

The first complete sewing-machine was patented by Elias Howe, Jr., in 1846.

The first temperance society in this country was organized in Saratoga County, N. Y., in March, 1808.

The first coach in Scotland was brought thither in 1501, when Queen Mary came from France. It belonged to Alexander Lord Seaton.

The first daily newspaper appeared in 1702. The first newspaper printed in the United States was published in Boston on September 25, 1790.

The first telegraphic instrument was successfully operated by S. F. B. Morse, the inventor, in 1835, though its utility was not demonstrated to the world until 1842.

The first Union flag was unfurled on the 1st of January, 1776, over the camp at Cambridge. It had thirteen stripes of white and red, and retained the English cross in one corner.

When Captain Cook first visited Tahiti, the natives were using nails of wood, bone, shell and stone. When they saw iron nails, they fancied them to be shoots of some very hard wood, and, desirous of securing such a valuable commodity, they planted them in their gardens.

In 1750 the "shoe-black" came into vogue. The poet Gay, in his day, refers to the business, describing a mother as instructing her son in his calling:

"Go thrive: at some frequented corner stand;
This brush I give thee, grasp it in thy hand;
Temper the foot within this vase of oil,
And let the little tripod aid thy toil."

HIGH-PRICED HORSES.

Mr. A. E. Whyland, of New York city, has prepared a list of the high-priced horses that have been sold in this country, from which we take the following:

TROTTERS SOLD AT \$20,000 OR OVER.

| | | | |
|----------------------|-----------|----------------------|----------|
| Axtell..... | \$105,000 | Gov. Sprague..... | \$27,500 |
| Bell Boy..... | 51,000 | Patron..... | 27,000 |
| Steamboul..... | 50,000 | Mascot..... | 26,000 |
| Sunol..... | 40,000 | Fearnaught..... | 25,000 |
| Acolyte..... | 40,000 | Jerome Eddy..... | 25,000 |
| Maud S..... | 40,000 | Wedgewood..... | 25,000 |
| Pocahontas..... | 40,000 | Geo. M. Patchen..... | 25,000 |
| Rarus..... | 36,000 | Happy Medium.... | 22,500 |
| Antevolo..... | 35,000 | Nutwood..... | 22,000 |
| Dexter..... | 35,000 | Sam Purdy..... | 22,000 |
| Goldsmith Maid | 32,000 | Startle..... | 22,000 |
| Smuggler | 30,000 | Edward Everett. | 20,000 |
| Anteo..... | 30,000 | Edward..... | 20,000 |
| Blackwood | 30,000 | St. Julien..... | 20,000 |
| Jay Gould | 30,000 | Lady Maud..... | 20,000 |
| Lady Thorne..... | 30,000 | Socrates..... | 20,000 |
| Prince Wilkes | 30,000 | Constantine..... | 20,000 |
| Pancoast..... | 28,000 | Resalind..... | 20,000 |

RUNNERS SOLD AT \$20,000 OR OVER.

In America.

| | |
|-------------------------|----------|
| Kentucky..... | \$40,000 |
| King Thomas..... | 40,000 |
| Dewdrop..... | 29,500 |
| Brother of Bassett..... | 25,000 |
| Vigil..... | 25,000 |
| Duke of Magenta..... | 20,000 |
| Ban Fox..... | 20,000 |
| Iroquois..... | 20,000 |
| Foxhall..... | 20,000 |

In England.

| | |
|-----------------------|----------|
| Ormonde..... | \$75,000 |
| Doncaster..... | 70,000 |
| Kangaroo..... | 70,000 |
| Blair Athol..... | 62,500 |
| Harvester..... | 43,000 |
| Gladiator..... | 35,000 |
| Isonomy..... | 30,000 |
| Spinaway..... | 27,500 |
| Wheel of Fortune..... | 25,000 |
| Janette..... | 21,000 |
| Cantiniere..... | 20,500 |
| Louisburg..... | 20,000 |

Legal Holidays in the Various States.

JANUARY 1. NEW YEAR'S DAY: in Alabama, California, Colorado, Connecticut, Florida, Georgia, Illinois, Indiana, Iowa, Kansas, Louisiana, Maine, Michigan, Minnesota, Mississippi, Missouri, Nebraska, Nevada, New Jersey, New York, Ohio, Pennsylvania, South Carolina, Tennessee, Texas, Vermont, Virginia, West Virginia, and Wisconsin.

JANUARY 8. ANNIVERSARY OF THE BATTLE OF NEW ORLEANS: in Louisiana.

FEBRUARY 22. WASHINGTON'S BIRTHDAY: in California, Colorado, Connecticut, Florida, Georgia, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, Nebraska, Nevada, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, South Carolina, Texas, Virginia, West Virginia, and Wisconsin.

MARCH 2. ANNIVERSARY OF TEXAN INDEPENDENCE: in Texas.

MARCH 4. FIREMAN'S ANNIVERSARY: in New Orleans, La.

MARDI-GRAS: in Louisiana, and the cities of Mobile, Montgomery and Selma, Ala.

APRIL 21. ANNIVERSARY OF THE BATTLE OF SAN JACINTO: in Texas.

GOOD FRIDAY: in Louisiana, Maryland, Minnesota, and Pennsylvania.

APRIL 26. MEMORIAL DAY: in Georgia.

MAY 30. DECORATION DAY: in California, Colorado, Connecticut, Iowa, Massachusetts, New Hampshire, New Jersey, New York, Pennsylvania, Rhode Island, Vermont.

JULY 4. INDEPENDENCE DAY: in all the States.

GENERAL ELECTION DAY: in California, Florida, Maryland, Missouri, New Jersey, New York, South Carolina, Texas and Wisconsin.

THANKSGIVING DAY: in all the States.

DECEMBER 25. CHRISTMAS DAY: in all the States.

Sundays and Fast Days (whenever appointed) are legal holidays in all the States.

DESCRIPTION OF THE AREA OCCUPIED BY, AND EARLY SETTLEMENT OF, THE UNITED STATES.

The greatest length of the territory from the Atlantic to the Pacific Ocean, occupied by the United States, on the parallel of 42° , is 2,768 miles; and its greatest breadth, from Point Isabel, Tex., to the northern boundary of North Dakota, is 1,650 miles. The Mexican boundary line is 1,500 miles in length. The boundary line separating the United States from the British possessions is about 3,400 miles long.

The first attempt at civilized settlement, in the United States, was made on the Island of Roanoke, off the coast of North Carolina, where a colony from England was placed, under the command of Sir Richard Grenville, in 1585. Having trouble with the Indians, several of the settlers were killed, and the remainder returned to England. In 1587 John White landed a party of 108 persons, and returned to England after founding the city of Raleigh named after Sir Walter Raleigh. Here Virginia Dare, the first white child, native of the United States, was born. In 1590, John White returned with a fleet, but all traces of the colonists, left three years before, had vanished. Their fate has never been ascertained.

In 1540, French fur-traders founded a settlement on Manhattan Island, where the city of New York now stands, but the next year they abandoned the country. A party of Huguenots, driven from France, sought refuge in South Carolina, where they built Port Royal, in 1562; but subsequent famine compelled them to abandon the colony. In 1565, the Spaniards, on the east coast of Florida, founded St. Augustine, the oldest existing town in the United States. The first permanent English settlement was made at Jamestown, Virginia, in 1607; the colony consisting of 105 emigrants, more than one-half of whom died within six months, from privation or at the hands of the Indians. Newly arrived immigrants from England, however, swelled the number of colonists to 200, in the year 1610.

Hendrick Christæson, a Hollander, in 1612, made a small redoubt enclosing four log huts, as a place in which to live and receive furs, on Manhattan Island, on the site where is now located No. 29 Broadway, New York City. A Dutch settlement, in 1614, was founded at Albany, N. Y. In 1620, the Puritans, a company of British refugees, numbering 102 persons, landed at Plymouth, Mass., at a point known as Plymouth Rock. In 1623 the Virginia colonists, then numbering 2,500, feeling themselves strong enough, attacked the Indians; this resulted in a desultory warfare which continued for 24 years.

RAILROAD MILEAGE OF THE WORLD.

From Poor's Manual for the Year 1892.

| COUNTRIES. | MILES OF LINE. | COUNTRIES. | MILES OF LINE. |
|------------------------------|-------------------|------------------------|-------------------|
| Algeria and Tunis..... | 3,094 | Japan..... | 1,460 |
| Argentine Republic..... | 9,300 | Malay States..... | 50 |
| Asia Minor (Turkey).... | 720 | Malta | 110 |
| Austria-Hungary | 26,500 | Mauritius..... | 751 |
| Barbadoes..... | 36 | Reunion..... | |
| Belgium..... | 5,174 | Senegal..... | |
| Bolivia..... | 171 | Mexico..... | 8,600 |
| Brazil..... | 9,300 | Natal..... | 376 |
| British Guiana..... | 35 | Netherlands..... | 3,057 |
| Canada..... | 21,624 | New South Wales..... | 3,624 |
| Cape Colony..... | 2,873 | New Zealand..... | 3,066 |
| Ceylon..... | 289 | Norway..... | 1,562 |
| Chili..... | 3,100 | Paraguay..... | 240 |
| China..... | 200 | Persia..... | 18 |
| Columbia..... | 371 | Peru..... | 1,600 |
| Cochin China..... | 83 | Porto Rico..... | 18 |
| Costa Rica..... | 900 | Portugal..... | 2,060 |
| Nicaragua..... | | Queensland..... | 3,320 |
| Guatemala..... | | Roumania..... | 2,543 |
| Honduras..... | | Russia..... | 30,140 |
| Salvador..... | | Servia..... | 526 |
| Cuba..... | 1,700 | South Australia..... | 2,827 |
| Denmark..... | 1,969 | Spain..... | 9,860 |
| Dutch East Indies..... | 1,283 | Sweden..... | 7,910 |
| Egypt..... | 1,541 | Switzerland..... | 3,104 |
| France..... | 36,348 | Tasmania..... | 603 |
| Germany & Luxemburg..... | 41,793 | Turkey..... | 1,765 |
| Great Britain & Ireland..... | 32,088 | United States..... | 259,687 |
| Greece..... | 708 | Uruguay..... | 757 |
| Hayti..... | 115 | Venezuela..... | 709 |
| India, British..... | 25,488 | Victoria..... | 3,682 |
| Italy..... | 13,063 | Western Australia..... | 800 |
| Jamaica..... | 474 | Total Mileage..... | 595,767 |
| Trinidad..... | | | |

BEGININGS OF THE SEASONS.

DAYS. HOURS.

| | | | |
|--|-------|----|-----|
| Spring, Sun enters Aries (0° long.)..... | March | 20 | 3M |
| Summer, Sun enters Cancer (90°)..... | June | 20 | 11A |
| Autumn, Sun enters Libra (180°)..... | Sept. | 22 | 2A |
| Winter, Sun enters Capricornus (270°)..... | Dec. | 21 | 8M |

THE DATE OF THE FLOOD.

| | |
|---|-------------|
| The Vulgate and Hebrew gives the time and date..... | 1,654 B. C. |
| The Samaritan Pentateuch | 1,307 B. C. |
| The Greeks..... | 2,262 B. C. |

RECORDS OF RAILROAD SPEED.

The fastest time made by an American train was on the Philadelphia & Reading Railroad, August 27, 1891, 12 miles, Jenkintown to the Delaware River, in 8 minutes, 42½ seconds, being at the average rate of 82.7 miles an hour. The tenth mile was made at the rate of 90.5 miles an hour, and the ninth mile at the rate of 90 miles. The average for the sixth to tenth mile was 87 miles. The train was composed of an engine, tender and three cars, all weighing 169 tons.

The fastest long-distance run was on the New York Central Railroad, September 14, 1891, from New York City to East Buffalo, 436¾ miles, in 425 minutes, 14 seconds, actual time, or 439½ minutes, including three stops. Average speed, including stops, 61.56 miles an hour.

The Jarrett & Palmer special theatrical train, Jersey City to San Francisco, June, 1886, made the fastest time between the two oceans—3 days, 7 hours, 39 minutes and 16 seconds.

The following are some noted long-distance runs tabulated by the *Railroad Gazette*.

| DATE. | RAILROAD. | TERMINALS. | GROSS. | | STOPS. | IN MOTION. | |
|--------------|------------------------------|------------------------|----------------|-------|--------|------------|--------|
| | | | Dis- tance. | Time. | | Time. | Speed. |
| Aug...1888 | London & Northwest..... | London—Edinburgh.... | 400 | 7.52 | 3 | 7.13 | 55.4 |
| July...1885 | West Shore..... | E. Buffalo—Weehawken.. | 422.6 | 9.23 | 12 | 8.17 | 51.0 |
| Sept....1891 | New York Central..... | New York—East Buffalo. | 436.3 | 7.19 | 3 | 7.5 | 61.56 |
| Sept....1891 | R. W. & O. and N. Y. C..... | Morristown—New York.. | 360.9 | 6.58 | 6 | 6.27 | 55.96 |
| Aug....1888 | Gt. Northern & Northeastern. | London—Edinburgh..... | 392.5 | 7.27 | 5 | 6.47 | 57.8 |

The fastest regular trains in the United States are believed to be those between Washington and Baltimore, on the Baltimore & Ohio Railroad, 40 miles in 45 minutes, a speed of 53.33 miles an hour. The run from Washington to New York, 225.3 miles, is made in 5 hours. Deducting 12 minutes for the Jersey City Ferry and 10 minutes for the Canton Ferry, the rate of speed is 48.6 miles per hour. The "Congressional Limited," on the Pennsylvania Railroad, also makes the run in 5 hours, 5 minutes, but the distance is 227 miles.

The shortest run between New York and Washington was made on the Pennsylvania Railroad, November 28, 1891, by a special train, in 4 hours, 11 minutes, making the running time, exclusive of stops, 56¾ miles an hour. This beat the time of the "Aunt Jack" train, made by the Madison Square Theater Company, March 10, 1890, which was 4 hours, 18 minutes, each way, going and return.

PROGRESS OF MERCHANT SHIPPING.

Merchant Vessels (Sail and Steam) belonging to the United States, Great Britain, France, and Germany, respectively, in each of the years 1850, 1860, 1870, 1880, 1885 and 1890.

| YEAR. | DESCRIP- TION. | U. S. OF AMERICA.* | | | GREAT BRITAIN.† | | | FRANCE. | | | GERMANY.‡ | | |
|-------|-------------------|--------------------|-------------|--|-----------------|-------------|--|---------|-------------|--|-----------|-------------|--|
| | | No. | Net Tonnage | | No. | Net Tonnage | | No. | Net Tonnage | | No. | Net Tonnage | |
| 1850 | Sail..... | ..... | 1,540,769 | | 24,797 | 3,396,659 | | 14,228 | 674,205 |  | ..... | ..... |  |
| | Steam.... | ..... | 44,942 | | 1,187 | 168,474 | | 126 | 13,925 |  | ..... | ..... |  |
| | Total... | ..... | 1,585,711 | | 25,984 | 3,565,133 | | 14,354 | 688,130 | | 2,742 | 310,752 | |
| 1860 | Sail..... | ..... | 2,448,941 | | 25,663 | 4,204,360 | | 14,608 | 928,099 |  | ..... | ..... |  |
| | Steam.... | ..... | 97,296 | | 2,000 | 454,327 | | 314 | 68,025 |  | ..... | ..... |  |
| | Total... | ..... | 2,546,237 | | 27,663 | 4,658,687 | | 14,922 | 996,124 | | 3,550 | 825,379 | |
| 1870 | Sail..... | ..... | 1,324,256 | | 23,187 | 4,577,855 | | 14,929 | 920,826 | | 4,372 | 900,361 | |
| | Steam.... | ..... | 192,544 | | 3,178 | 1,112,934 | | 457 | 151,415 | | 147 | 81,994 | |
| | Total... | ..... | 1,516,800 | | 26,365 | 5,690,789 | | 15,386 | 1,072,241 | | 4,519 | 982,355 | |
| 1880 | Sail..... | ..... | 1,206,206 | | 19,938 | 3,851,045 | | 14,406 | 641,539 | | 4,246 | 965,767 | |
| | Steam.... | ..... | 146,606 | | 5,247 | 2,723,468 | | 652 | 277,759 | | 414 | 215,758 | |
| | Total... | ..... | 1,352,810 | | 25,185 | 6,574,513 | | 15,058 | 919,298 | | 4,660 | 1,181,525 | |
| 1885 | Sail..... | 1,937 | 1,101,593 | | 17,018 | 3,456,562 | | 14,329 | 507,819 | | 3,471 | 861,844 | |
| | Steam.... | 182 | 186,406 | | 6,644 | 3,973,483 | | 937 | 492,396 | | 664 | 420,605 | |
| | Total... | 2,119 | 1,287,999 | | 23,662 | 7,430,045 | | 15,266 | 1,000,215 | | 4,135 | 1,282,449 | |
| 1890 | Sail..... | ..... | 827,124 | | 14,181 | 3,055,136 | | 14,128 | 440,051 | | 2,757 | 709,761 | |
| | Steam.... | ..... | 194,471 | | 7,410 | 8,095,370 | | 1,066 | 492,684 | | 896 | 723,652 | |
| | Total... | ..... | 1,021,595 | | 21,591 | 11,150,506 | | 15,194 | 932,735 | | 3,653 | 1,433,413 | |

* The figures for the United States do not include vessels employed in the river, lake and coasting trades.

Such vessels are prohibited by law from going on foreign voyages. † The figures for Great Britain include

all registered vessels without any limit of tonnage. ‡ Vessels of less than 17.65 tons are not included.

COMPARATIVE STATISTICS OF RAILROADS IN THE UNITED STATES. 1879-1892.

| YEAR ENDING | Capital Stock. | Miles of Line Worked. | Funded Debt. | Gross Earnings. | Net Earnings. | Interest Paid. | Dividends Paid. |
|----------------|-----------------|-----------------------------|-----------------|--------------------|---------------|----------------|--------------------|
| 1879... | \$2,395,657,293 | 79,009 | \$2,319,489,172 | \$525,620,577 | \$216,544,999 | \$112,237,515 | \$61,681,470 |
| 1880... | 2,708,673,375 | 82,146 | 2,530,874,943 | 613,733,610 | 255,557,555 | 107,866,328 | 77,115,371 |
| 1881... | 3,177,375,179 | 92,971 | 2,878,423,606 | 701,780,982 | 272,506,787 | 128,587,302 | 93,344,190 |
| 1882... | 3,511,035,824 | 104,971 | 3,235,543,323 | 770,209,899 | 280,316,696 | 154,295,380 | 102,031,534 |
| 1883... | 3,708,060,583 | 110,414 | 3,500,879,914 | 823,772,924 | 293,367,285 | 173,139,064 | 102,052,584 |
| 1884... | 3,762,616,686 | 115,672 | 3,669,115,772 | 770,684,908 | 268,106,258 | 176,694,302 | 93,203,852 |
| 1885... | 3,817,697,832 | 123,330 | 3,765,727,066 | 772,568,833 | 269,493,931 | 187,426,035 | 77,672,105 |
| 1886... | 3,999,508,508 | 125,185 | 3,882,966,330 | 829,940,836 | 300,603,564 | 189,036,304 | 81,654,138 |
| 1887... | 4,191,562,029 | 137,028 | 4,186,943,116 | 940,150,702 | 334,989,119 | 203,790,352 | 91,573,458 |
| 1888... | 4,438,411,342 | 145,387 | 4,624,035,023 | 960,256,270 | 301,631,051 | 207,124,288 | 80,243,041 |
| 1889... | 4,495,099,318 | 152,745 | 4,828,365,771 | 1,003,736,596 | 322,284,986 | 219,877,150 | 81,264,029 |
| 1890... | 4,640,239,578 | 158,037 | 5,105,902,025 | 1,090,642,560 | 346,921,318 | 226,799,682 | 85,075,705 |
| 1891... | 4,809,176,651 | 164,234 | 5,223,295,074 | 1,138,024,459 | 356,209,880 | 231,259,810 | 90,719,757 |

RAILROAD FACTS.

The cost of railroads in the United States has been nine billion dollars. One million persons are employed by the railroads of the United States. The cost of a palace sleeping-car is \$15,000, or if "vestibuled," \$17,000. The average cost of constructing a mile of railroad in the United States, at the present time, is about \$30,000. The average daily earning of an American locomotive is about \$100. The "consolidation" locomotive weighs 50 tons and is able to draw on a level over 2,400 tons. The longest mileage operated by a single system is that of the Union Pacific—10,928 miles. The line of railroad which extends farthest east and west is the Canadian Pacific, running from Quebec to the Pacific Ocean. There are 60 miles of snow-sheds on the Central Pacific Railroad. The highest railroad in the United States is the Colorado Midland, at the Continental Divide—11,530 feet.

SHRINKAGE OF CASTINGS.

Tin—One-fourth inch in a foot.
 Pipes—One-eighth inch in a foot.
 Zinc—Five sixteenths inch in a foot.
 Lead—Five sixteenths inch in a foot.
 Copper—Three-sixteenths inch in a foot.
 Thin Brass—One-eighth inch in nine inches.
 Thick Brass—One-eighth inch in ten inches.
 Bismuth—Five-thirty-seconds inch in a foot.
 Locomotive Cylinders—One sixteenth inch in a foot.
 Beams, Girders, etc.—One-eighth inch in fifteen inches.
 Engine-beams, Connecting-rods, etc.—One-eighth inch in sixteen inches.

Center of Population in the United States.

| DATE. | POSITION OF CENTER OF POPULATION. | WESTWARD MOVEMENT. |
|--------|---|-----------------------|
| 1790.. | 23 miles E. of Baltimore, Md..... | — |
| 1800.. | 18 miles W. of Baltimore, Md..... | 41 miles. |
| 1810.. | 40 miles N. W. by W. of Washington, D. C. | 36 miles. |
| 1820.. | 16 miles N. of Woodstock, Va..... | 50 miles. |
| 1830.. | 19 miles W. S. W. of Moorefield, W. Va..... | 39 miles. |
| 1840.. | 16 miles S. of Clarksburg, W. Va..... | 55 miles. |
| 1850.. | 23 miles S. E. of Parkersburg, W. Va..... | 55 miles. |
| 1860.. | 20 miles S. of Chillicothe, O..... | 81 miles. |
| 1870.. | 48 miles E. by N. of Cincinnati, O..... | 42 miles. |
| 1880.. | 8 miles W. by S. of Cincinnati, O..... | 58 miles. |
| 1890.. | 20 miles E. of Columbus, Ind..... | 43 miles. |

Westward movement in 100 years.....500 miles.

ALCOHOL! WHO DRINKS IT?

It has been the endeavor of the census-takers, in 1890, to obtain, as far as possible, such facts as relate to the use of *alcohol as a beverage*. It appears that alcohol, as such (in some cases diluted with water, but without any coloring or extraneous flavoring), is used by a certain foreign element of our population. It is drunk to a great extent by Poles, Norwegians, Swedes, Finns, Hungarians and Russians. The quantity thus consumed is larger than is generally supposed. Inquiry of some of the large houses in the Northwest, familiar with this particular trade, elicits the information that fully one-half of the alcohol sold in that section is drunk, it being the favorite beverage of these foreign races. It is estimated, by competent authority, that about fifteen barrels of alcohol are daily consumed for that purpose in New York city alone. A considerable amount is consumed by the same element in the coal regions of Pennsylvania, and undoubtedly in other localities.

TELEGRAPH STATISTICS OF THE WORLD.

| COUNTRIES. | MILES OF LINE. | COUNTRIES. | MILES OF LINE. |
|------------------------------|-------------------|------------------------|-------------------|
| Algeria..... | 3,645 | Montenegro..... | 280 |
| Austria-Hungary..... | 32,684 | Netherlands..... | 2,660 |
| Bavaria..... | 5,215 | New South Wales..... | 10,000 |
| Belgium..... | 3,713 | New Zealand..... | 4,074 |
| Bolivia..... | 182 | Nicaragua..... | 800 |
| Brazil..... | 4,888 | Norway..... | 5,629 |
| Bulgaria..... | 1,325 | Orange Free State..... | 276 |
| Canada..... | 23,330 | Paraguay..... | 45 |
| Cape of Good Hope..... | 4,031 | Persia..... | 3,647 |
| Chili..... | 6,840 | Peru..... | 550 |
| China..... | 3,089 | Portugal..... | 2,920 |
| Columbia..... | 2,357 | Queensland..... | 6,614 |
| Costa Rica..... | 450 | Roumania..... | 3,000 |
| Cuba..... | 2,835 | Russia..... | 65,726 |
| Denmark..... | 2,283 | San Salvador..... | 750 |
| Dutch East Indies..... | 3,682 | Servia..... | 1,405 |
| Egypt..... | 3,222 | South Australia..... | 5,278 |
| France..... | 46,932 | Spain..... | 10,733 |
| Germany..... | 47,637 | Sweden..... | 5,347 |
| Great Britain & Ireland..... | 27,604 | Switzerland..... | 4,270 |
| Greece..... | 3,720 | Tasmania..... | 1,273 |
| Guatemala..... | 2,880 | Transvaal..... | 110 |
| Hawaii..... | 175 | Tunis..... | 2,500 |
| Honduras..... | 1,800 | Turkey..... | 14,617 |
| India, British..... | 21,740 | United States..... | 215,764 |
| Italy..... | 17,258 | Uruguay..... | 1,405 |
| Japan..... | 4,733 | Victoria..... | 3,600 |
| Luxemburg..... | 196 | Western Australia..... | 2,359 |
| Mexico..... | 19,000 | | |
| Total Miles..... | | | 673,168 |

One Dollar loaned for 100 years at the following rates of interest compounded will amount to the figures set opposite the per cent at the end of that time:

| | | |
|-----------------|----|------------------|
| 3 per cent..... | \$ | 19.25 |
| 6 " "..... | | 540.00 |
| 8 " "..... | | 2,203.00 |
| 10 " "..... | | 13,809.00 |
| 12 " "..... | | 85,075.00 |
| 18 " "..... | | 15,145,007.00 |
| 24 " "..... | | 2,551,799,404.00 |

The moral is—*lend instead of borrow.*

The Metropolitan Police District, of London, England, extends over a radius of 15 miles from Charing Cross, exclusive of the City of London—688.31 square miles—with a ratable value of £25,089,558. The number of new houses built since 1849 is 525,107, with 3,532 in course of erection, the new mileage being 1,888; total length patrolled, 8,360 miles.

THE WESTERN UNION TELEGRAPH COMPANY,

Statement Exhibiting the Mileage of Lines Operated, Number of Offices, Number of Messages Sent, Receipts, Expenses and Profits for Each Year Since 1866.

| YEARS. | MILES OF POLES AND CABLES. | MILES OF WIRE. | OFFICES. | MESSAGES. | RECEIPTS. | EXPENSES. | PROFITS. |
|-----------|----------------------------------|-------------------|----------|------------|--------------|--------------|-------------|
| 1866..... | 37,380 | 75,686 | 2,250 | 5,879,282 | \$ 6,468,925 | \$ 3,944,006 | \$2,624,920 |
| 1867..... | 46,270 | 85,291 | 2,565 | 6,404,595 | 7,004,560 | 4,362,849 | 2,641,711 |
| 1868..... | 50,183 | 97,594 | 3,219 | 7,934,933 | 7,316,918 | 4,568,117 | 2,748,801 |
| 1869..... | 52,099 | 104,584 | 3,607 | 9,157,646 | 7,138,738 | 4,910,772 | 2,227,966 |
| 1870..... | 54,109 | 112,191 | 3,972 | 10,646,077 | 7,637,449 | 5,104,787 | 2,532,662 |
| 1871..... | 56,032 | 121,151 | 4,606 | 12,444,499 | 8,457,096 | 5,666,863 | 2,790,233 |
| 1872..... | 62,033 | 131,190 | 5,237 | 14,456,832 | 9,333,019 | 6,575,056 | 2,757,963 |
| 1873..... | 65,757 | 154,472 | 5,740 | 16,329,256 | 9,264,654 | 6,755,734 | 2,506,920 |
| 1874..... | 71,585 | 175,735 | 6,188 | 17,153,710 | 9,564,575 | 6,335,415 | 3,229,158 |
| 1875..... | 72,833 | 179,496 | 6,565 | 18,729,567 | 10,034,984 | 6,635,474 | 3,399,510 |
| 1876..... | 73,532 | 183,832 | 7,072 | 21,158,941 | 9,812,253 | 6,672,223 | 3,140,128 |
| 1877..... | 76,955 | 194,323 | 7,500 | 23,070,106 | 9,861,355 | 6,309,813 | 3,551,543 |
| 1878..... | 81,002 | 206,202 | 8,014 | 25,918,894 | 10,960,640 | 6,160,200 | 4,800,440 |
| 1879..... | 82,987 | 211,566 | 8,534 | 29,215,509 | 12,782,895 | 6,948,957 | 5,833,938 |
| 1880..... | 85,645 | 233,534 | 9,077 | 32,500,000 | 14,393,544 | 8,485,264 | 5,908,280 |
| 1881..... | 110,340 | 327,171 | 10,837 | 38,842,247 | 17,114,166 | 9,996,096 | 7,118,070 |
| 1882..... | 131,060 | 374,368 | 12,068 | 41,181,177 | 19,454,903 | 11,794,553 | 7,660,350 |
| 1883..... | 142,294 | 432,726 | 12,917 | 42,076,226 | 19,632,940 | 13,022,436 | 6,610,436 |
| 1884..... | 145,037 | 450,571 | 13,761 | 42,096,583 | 17,706,834 | 12,005,910 | 5,700,924 |
| 1885..... | 147,500 | 462,283 | 14,184 | 43,289,807 | 16,298,639 | 12,378,783 | 3,919,855 |
| 1886..... | 151,832 | 489,607 | 15,142 | 47,394,530 | 17,191,910 | 13,154,629 | 4,037,281 |
| 1887..... | 156,814 | 524,641 | 15,658 | 51,463,955 | 19,711,164 | 14,640,592 | 5,070,572 |
| 1888..... | 171,375 | 616,248 | 17,241 | 54,108,326 | 20,783,194 | 14,565,153 | 6,218,041 |
| 1889..... | 178,754 | 647,697 | 18,470 | 55,878,762 | 22,387,028 | 15,074,303 | 7,312,725 |
| 1890..... | 183,917 | 678,997 | 19,382 | 59,148,343 | 23,034,326 | 16,428,041 | 6,605,584 |
| 1891..... | 187,981 | 715,591 | 20,098 | | | | |

CURRENCY CIRCULATION.

Comparative statement showing the changes in circulation from July 1, 1887, to November 1, 1888.

| | July 1, 1887. | Nov. 1, 1888. | Decrease. | Increase. |
|------------------------------|-----------------|-----------------|--------------|---------------|
| Gold coin..... | \$376,758,607 | \$380,016,817 | ..... | \$3,258,210 |
| Standard silver dollars..... | 55,504,310 | 59,801,350 | ..... | 4,297,040 |
| Subsidiary silver..... | 48,097,259 | 52,571,712 | ..... | 3,874,453 |
| Gold certificates..... | 91,225,437 | 140,613,658 | ..... | 49,388,221 |
| Silver certificates..... | 142,118,017 | 229,783,152 | ..... | 87,665,135 |
| United States notes..... | 326,667,219 | 309,867,696 | \$16,799,523 | ..... |
| National bank notes..... | 376,855,203 | 235,217,883 | 44,637,920 | ..... |
| Totals..... | \$1,317,826,052 | \$1,407,873,665 | \$52,437,443 | \$148,483,059 |
| Net increase..... |  |  | ..... | \$90,045,616 |

Comparative statement showing the changes in money and bullion held in the Treasury from July 1, 1887, to November 1, 1888.

| | July 1, 1887. | Nov. 1, 1888. | Decrease. | Increase. |
|-------------------------------|---------------|---------------|-------------|---------------|
| Gold coin..... | \$192,368,916 | \$223,209,020 | ..... | \$30,840,104 |
| Standard silver dollars..... | 211,483,970 | 249,979,440 | ..... | 38,495,470 |
| Subsidiary silver..... | 26,977,494 | 24,088,769 | \$2,888,725 | ..... |
| United States notes..... | 20,013,797 | 36,813,320 | ..... | 16,799,523 |
| National bank notes..... | 2,362,585 | 4,167,954 | ..... | 1,805,369 |
| Gold bullion..... | 85,732,190 | 108,479,213 | ..... | 22,747,023 |
| Silver bullion..... | 3,982,472 | 4,369,972 | ..... | 387,500 |
| Trade-dollars as bullion..... | 6,934,963 | 6,189,142 | 745,821 | ..... |
| Totals..... | \$549,856,387 | \$657,296,830 | \$3,634,546 | \$111,074,989 |
| Net increase..... |  |  | ..... | \$807,440,443 |

Receipts and Expenditures of the Government.

The following statement shows the ordinary receipts and expenditures for the fiscal year 1890 in comparison with those of the preceding year:

| REVENUE AND DISBURSEMENTS. | | 1889. | 1890. | INCREASE. | DECREASE. |
|--|-------|------------------|------------------|-----------------|-----------------|
| Revenue from Customs | ..... | \$223,892,741.69 | \$229,668,584.57 | \$ 5,835,842.88 | ..... |
| “ Internal revenue | ..... | 130,881,513.92 | 142,606,705.81 | 11,725,191.89 | ..... |
| “ Sale of public lands | ..... | 8,038,651.79 | 6,358,272.51 | ..... | \$ 1,680,379.28 |
| “ Miscellaneous sources | ..... | 24,297,151.44 | 24,447,419.74 | 150,268.30 | ..... |
| Total | ..... | 387,050,058.84 | 403,080,982.63 | 17,111,303.07 | 1,680,379.28 |
| Net increase | ..... | ..... | ..... | 16,030,923.79 | ..... |
| Expenditures on account of— | | | | | |
| Civil and miscellaneous: | | | | | |
| Customs, light-houses, public bldgs., etc. | | | | | |
| Internal revenue | ..... | 20,154,142.08 | 19,734,371.91 | ..... | 419,770.17 |
| Interior civil (lands, patents, etc.) | ..... | 3,941,466.30 | 3,928,068.31 | ..... | 13,397.99 |
| Treasury proper (legislative, executive and other civil) | ..... | 7,359,790.25 | 8,442,413.14 | 1,082,622.89 | ..... |
| Diplomatic (foreign relations) | ..... | 42,847,717.40 | 43,430,561.05 | 582,843.65 | ..... |
| Judiciary | ..... | 1,897,625.72 | 1,648,276.59 | ..... | 249,349.13 |
| War department | ..... | 4,463,322.51 | 4,219,565.49 | ..... | 243,757.02 |
| Navy department | ..... | 44,435,270.85 | 44,582,838.08 | 147,567.23 | ..... |
| Interior department (Indians and pensions) | ..... | 21,378,809.31 | 22,006,206.24 | 627,396.93 | ..... |
| Interest on public debt | ..... | 94,516,986.89 | 113,644,901.74 | 19,127,914.85 | ..... |
| Premium on public debt | ..... | 41,001,484.29 | 36,099,284.05 | ..... | 4,902,200.24 |
| Total | ..... | 17,292,362.65 | 20,304,224.06 | 3,011,861.41 | ..... |
| Net increase | ..... | 299,288,978.25 | 318,040,710.66 | 24,580,206.96 | 5,828,474.55 |
| Surplus | ..... | ..... | ..... | 18,751,732.41 | ..... |
| | | \$ 87,761,080.59 | \$85,040,271.97 | ..... | \$ 2,720,808.62 |

WEIGHT OF VARIOUS MATERIALS IN LBS. (AVOIRDUPOIS) PER CUBIC FOOT.--Pure Gold 1,203.6, Standard Gold 1,102.9, Hammered Gold 1,210.11, Pure Silver 654.6, Hammered Silver 656.9, Standard Silver 658.4, Cast Brass 524.8, Brass Wire 534, Bismuth (Cast) 613.9, Antimony 418.9, Bronze 513.4, Cobalt (Cast) 488.2, Copper (Cast) 459.3, Copper (Sheet) 557.2, Copper (Wire) 554.9, Wrought Iron 486.75, Iron Plates 481.5, Cast Iron 450.4, Gun Metal 543.75, Cast Lead 709.5, Rolled do. 711.75, Red Lead 558.75, Tin 455.7, Platinum (Pure) 1,218, Hammered do. 1,271, Mercury 60 deg., Fluid 848, Mercury (Solid) 977, Nickel (Cast) 487.9, Steel (Plates) 480.75, Steel (Soft) 489.6, Type Metal 653.1, Zinc (Cast) 439, Granite 165.75, Millstone 155.3, Marble (Mean, of nineteen kinds) 180, Grindstones 133.9, Firebrick 137.5, Tile 114.44, Brick (Mean) 102, Clay 102, Limestone (Mean, of seven sorts) 184.1, Loose Earth or Sand 95, Coarse Sand 112.5, Ordinary Soil 124, Mud 102, Clay and Stones 160, Slate 167 to 181.25, Plaster Paris 73.5, Plumbago 131.35, Anthracite Coal from 89.75 to 102.5, Cannel Coal from 77.33 to 82.33, Charcoal from Hard Wood 18.5, ditto from Soft Wood 18, Port Wine 62.31, Fresh Water 62.5, Sea Water 64.3, Dead Sea Water 77.5, Vinegar 67.5, Alum 107.10, Asbestos (Starry) 192.1, Ice at 32 degs. 57.5, Sulphur 127.1, Peat 375 to 83.1, Marl (Mean) 109.33, Hydraulic Lime 171.60, Quartz 166.25, Rock Crystal 170.94, Salt (Common) 133.12, Lard 59.20, Whale Oil 57.70, Olive Oil 57.19.

WEIGHT OF A CUBIC INCH OF VARIOUS METALS IN POUNDS.--Hammered Gold .701 lbs., Cast do (pure) .698, 20 Carats Fine do. .567, Hammered Silver .382, Pure do. .378, Cast Steel .287, Cast Iron .263, Sheet Iron .279, Rolled Platinum .797, Wire do .762, Hammered do .735, Sheet Copper .323, Sheet Brass .304, Lead .416, Cast Tin .264, Cast Zinc .245.

SUNDRY COMMERCIAL WEIGHTS.--A ton of wood is 2 stones of 14 lbs. each. A pack of wool is 240 lbs. A sack of wool is 22 stones of 14 lbs., or 308 lbs. In Scotland, it is 24 of 16 lbs. A keel of 8 Newcastle chaldrons is 15½ London chaldrons. 56 or 60 lbs. is a truss of hay, 40 lbs. a truss of straw; 36 trusses a load. A bushel of rock salt is 65 lbs., of crushed salt 56 lbs., of foreign salt, 84 lbs. A tierce of beef, in Ireland, is 304 lbs., and of pork 320 lbs. A fodder of lead is 19½ cwt. in London and 21 cwt. in the North. A man's load is 5 bushels, a market load 40 (or 5 quarters). A last is 10 quarters of corn, or 2 cart loads, 12 sacks of wool, 24 barrels of gunpowder, 12 barrels of ashes, herring, soap, &c. and 18 barrels of salt. A hundred of of salt 126 barrels.

SUNDRY MEASURES OF LENGTH.--The hair's breadth is the smallest, of which 48 are an inch. Four barley-corns laid breadthways are ¾ of an inch, called a digit, and 3 barley-corns lengthways are an inch. An inch is divided into 12 lines and by mechanics into 8ths. A nail used in cloth measure is 2¼ ins. or the 16th of a yard. A palm is 3 ins, and a span 9 ins. An English Statute mile is 1,760 yds. or 5,280 ft., an Irish mile 2,240 yds., a Scotch mile 1,984 yds., 80 Scotch miles being equivalent to 92 English, and 11 Irish to 14 English.

Marriage and Divorce Laws of all the States and Territories.

Marriage, Licenses.—Required in all the States and Territories except Dakota, Montana, New Mexico, New Jersey, and New York. In Maryland legal marriage can be had only by an ordained minister.

Marriage, Prohibition of.—Marriage between whites and persons of negro descent are prohibited and punishable in California, Colorado, Delaware, Georgia, Florida, Kentucky, Maryland, Mississippi, Missouri, Nebraska, North Carolina, Oregon, South Carolina, Tennessee, Texas, Virginia, and West Virginia.

Marriages between whites and Indians are prohibited in Arizona and North Carolina.

Marriages between whites and Chinese are prohibited in Arizona.

The marriage of first cousins is forbidden in Arkansas, Dakota, Indiana, Kansas, Montana, Nevada, New Mexico, Ohio, Washington Territory, and Wyoming, and in some of them is declared incestuous and void.

Marriage, Age to Contract.—In New Jersey and Ohio males under twenty-one years and females under eighteen years of age must obtain the consent of parents or guardians. In Massachusetts a marriage between a male over fourteen and a female over twelve is legal, even without the consent of parents.

Marriage, Presumption of.—In Missouri it has been held that where parties cohabit and represent themselves as husband and wife, a marriage is presumed, and when parties capable of contracting agree, in express terms, with each other, to be husband and wife, and cohabit as such, the marriage is valid, without any further ceremony being performed. In California marriage is declared a

civil contract; consent, followed by a mutual assumption of marital rights and obligations, is sufficient.

Divorce, Previous Residence Required.—Dakota, ninety days; Arizona, Idaho, Nebraska, Nevada, and Wyoming, six months; Colorado, Illinois, Iowa, Kansas, Kentucky, Maine, Mississippi, Minnesota, Montana, New Hampshire, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont (both parties, as husband and wife), West Virginia, and Wisconsin, one year; Florida, Indiana, Maryland, North Carolina, and Tennessee, two years; Connecticut, Massachusetts, and New Jersey (for desertion), three years.

Divorce, Causes for.—The violation of the marriage vow is cause for absolute divorce in all the States, excepting South Carolina, which has no divorce law.

Willful desertion, one year, in Arizona, Arkansas, Colorado, Dakota, Florida, Idaho, Kansas, Kentucky, Montana, Nevada, Rhode Island, Utah, Wisconsin and Wyoming.

Willful desertion, two years, in Alabama, Illinois, Indiana, Iowa, Michigan, Mississippi, Nebraska, Pennsylvania, Tennessee.

Willful desertion, three years, in Connecticut, Delaware, Georgia, Maine, Maryland, Massachusetts, Minnesota, New Hampshire, New Jersey, Ohio, Oregon, Vermont, and West Virginia.

Willful desertion, five years, in Virginia.

Habitual drunkenness, in all the States, *except* Louisiana, Maryland, New Jersey, New York, North Carolina, Pennsylvania, South Carolina, Texas, Vermont, Virginia, and West Virginia.

"Imprisonment for felony" or "conviction of felony," in all the States, *except* Florida, Louisiana, Maine, Maryland, Nevada, New Jersey, New York, North Carolina, Rhode Island, South Carolina, and Wisconsin.

"Cruel and abusive treatment," "intolerable cruelty," "extreme cruelty," or "inhuman treatment," in all the States, *except* Florida, Kentucky, Louisiana, Maryland, Michigan, New York, North Carolina, Pennsylvania, South Carolina, Tennessee, and West Virginia.

Failure to provide, one year, in California, Nevada,

and Wyoming; two years in Indiana and Idaho; three years in Massachusetts; no time specified in Maine, Nebraska, Rhode Island, and Vermont. "Gross neglect of duty," in Kansas; willful neglect for three years, in Delaware.

Fraud and fraudulent contract, in Connecticut, Georgia, Idaho, Kansas, Ohio, and Pennsylvania.

Absence without being heard of, in New Hampshire; absence two years, in Tennessee; seven years, in Connecticut and Vermont; absence, without reasonable cause, one year, in Missouri: separation five years, in Kentucky; voluntary separation, five years, in Wisconsin.

Ungovernable temper, in Kentucky; "habitual indulgence in violent and ungovernable temper," in Florida; "such indignities as make life intolerable," in Missouri and Wyoming; "indignities as render life burdensome," in Oregon and Pennsylvania.

Other causes in different States are as follows: "Husband notoriously immoral before marriage, unknown to wife," in West Virginia; "fugitive from justice," in Virginia; "gross misbehavior or wickedness," in Rhode Island; "attempt on life," in Illinois; "refusal of wife to move into the State," in Tennessee; "mental incapacity at time of marriage," in Georgia; "three years with any religious society that believes the marriage relation unlawful," in Massachusetts; "joining any religious sect that believes marriage unlawful, and refusing to cohabit six months," in New Hampshire; "parties cannot live in peace and union," in Utah; "settled aversion, which tends to permanently destroy all peace and happiness," in Kentucky.

In Georgia an absolute divorce is granted only after the concurrent verdict of two juries, at different terms of the court. In New York absolute divorce is granted for but one cause, adultery. In South Carolina there is no divorce law.

All of the causes above enumerated are for absolute or full divorce.

Divorce, Remarriage.—There are no restrictions upon remarriage, by divorced persons, in Connecticut, Kentucky, Illinois, and Minnesota. Either party may

remarry, but defendant must wait two years, and obtain permission from the court, in Massachusetts. The decree of the court may restrain the guilty party from remarrying in Virginia. Parties cannot remarry until after two years, except by permission of the court, in Maine. In the State of New York the plaintiff may remarry, but the defendant cannot do so during the plaintiff's lifetime, unless the decree be modified or proof that five years have elapsed, and that complainant has married again, and defendant's conduct has been uniformly good. Any violation of this is punished as bigamy, even though the other party has been married.

The courts of every State, and particularly of New York, are very jealous of their jurisdiction, and generally refuse to recognize as valid a divorce against one of the citizens of the State by the court of another State, unless both parties to the suit were subject at the time to the jurisdiction of the court granting the divorce.

● Kansas courts grant divorces for the reason that the applicant's husband or wife has obtained a divorce in another State, and the applicant has been forbidden to remarry. If a wife in New York obtains a divorce from her husband, and he is forbidden to remarry, he may go to Kanaas and obtain a divorce on that ground. If his wife contests the case, or can be served with the papers in Kansas, so that she is brought under the jurisdiction of the Kansas court, the courts of New York must recognize the divorce as valid, and cannot punish the husband for remarrying in New York.

New York permits polygamy and polyandry in certain cases. Desertion for five years, without knowledge that the deserter is living, permits the one deserted to marry again; and the second marriage is valid, though the deserter returns. The second marriage may be declared void, but only from the date of the decree, by a court of competent jurisdiction, upon proper petition; but if no such petition is made, and all parties are satisfied, one husband may live in lawful wedlock with two or more wives, or one wife with two or more husbands. The children will inherit, and both wives will be entitled to dower.

Mason and Dixon's Line.

A name given to the southern boundary line of Pennsylvania, which formerly separated it from the slave States of Maryland and Virginia. It was run — with the exception of about twenty-two miles — by Charles Mason and Jeremiah Dixon, two English surveyors, between Nov. 15, 1763, and Dec. 26, 1767. During the excited debate in Congress, in 1820, on the question of excluding slavery from Missouri, John Randolph of Roanoke made great use of this phrase, which was caught up and echoed by every newspaper in the land, and thus gained a celebrity which it still retains.

Air-Line Distances from Washington to Various Parts of the World.

| Miles. | Miles. |
|-------------------------------|---------------------------------|
| Alexandria, Egypt.....5,275 | Manilla, Phil. Islands....9,360 |
| Amsterdam, Holland.....3,555 | Mecca, Arabia.....6,598 |
| Athens, Greece.....5,005 | Muscat, Arabia.....7,600 |
| Auckland, N. Z.....8,290 | Monrovia, Liberia.....3,645 |
| Algiers, Algeria.....3,425 | Morocco, Morocco.....3,305 |
| Berlin, Prussia.....3,847 | Mourzouk, Fezzan.....5,525 |
| Berne, Switzerland.....3,730 | Mozambique, Moz.....7,348 |
| Brussels, Belgium....3,515 | Ottawa, Canada.....462 |
| Batavia, Java.....11,118 | Panama, New Gran.....1,825 |
| Bombay, Hindostan.....8,548 | Parana, A. C.....4,733 |
| Buenos Ayres, A. C.....5,013 | Port au Prince, Hayti...1,425 |
| Bremen, Pr.....3,500 | Paris, France.....3,485 |
| Constantinople, Turkey..4,880 | Pekin, China.....8,783 |
| Copenhagen, Denmark...3,895 | Quebec, Canada.....601 |
| Calcutta, Hindostan.....9,348 | Quito Ecuador.....2,531 |
| Canton, China.....9,000 | Rio Janeiro, Brazil....4,280 |
| Cairo, Egypt.....5,848 | Rome, Italy.....4,365 |
| Cape Town, Cape Colony..6,684 | St. Petersburg, Russia...4,296 |
| Cape of Good Hope.....7,380 | Stockholm, Sweden.....4,055 |
| Caraccas, Venezuela.....1,058 | Shanghai, China.....8,600 |
| Charlotte Town, P. E. I...820 | Singapore, Malay.....11,300 |
| Dublin, Ireland.....3,076 | St. John's N. F.....1,340 |
| Delhi, Hindostan.....8,368 | San Domingo, S. D.....4,300 |
| Edinburgh, Scotland....3,275 | San Juan, Nicaragua...1,740 |
| Frederickton, N. B.....670 | San Salvador, A. C.....1,650 |
| Gibraltar, Spain.....3,150 | Santiago, Chili.....4,970 |
| Glasgow, Scotland.....3,215 | Spanish Town, Jamaica..1,446 |
| Halifax, N. S.....780 | Sidney, C. B. I.....975 |
| Hamburg, Germany.....3,570 | Sydney, Australia.....8,963 |
| Havana, Cuba.....1,139 | St. Paul de Loanda.....5,578 |
| Honolulu, S. I.....4,513 | Timbuctoo, Soudan.....3,395 |
| Jerusalem, Palestine....5,495 | Tripoli, Tripoli.....4,425 |
| Jamestown, St. Helena...7,150 | Tunis, Tunis.....4,240 |
| Lima, Peru.....3,515 | Toronto, Canada.....343 |
| Lisbon, Portugal.....3,190 | Venice, Italy.....3,835 |
| Liverpool, England.....3,228 | Vienna, Austria.....4,115 |
| London, England.....3,315 | Valparaiso, Chili.....4,984 |
| City of Mexico, Mex.....1,867 | Vera Cruz, Mexico.....1,680 |
| Montevideo, Uruguay...5,003 | Warsaw, Poland.....4,010 |
| Montreal, Canada.....471 | Yeddo, Japan.....7,630 |
| Madrid, Spain.....3,485 | Zanzibar, Zanzibar....7,078 |
| Moscow, Russia.....4,466 | |

PREVIOUS WORLD'S FAIRS.

| WHERE HELD. | Year. | Area Cov- ered.* | Exhib- itors. | Visitors. | Days Open. | Receipts.† |
|------------------------------------|-------|------------------------|------------------|-------------|---------------|-------------|
| | | <i>Acres.</i> | | | | |
| London | 1851 | 21 | 13,937 | 6,039,195 | 141 | \$1,780,000 |
| Paris..... | 1855 | 24½ | 20,839 | 5,162,330 | 200 | 644,100 |
| London..... | 1862 | 23½ | 28,653 | 6,211,103 | 171 | 1,614,260 |
| Paris..... | 1867 | 37 | 50,226 | 8,805,969 | 217 | 2,103,675 |
| Vienna..... | 1873 | 40 | 50,000 | 6,740,500 | 186 | 1,032,385 |
| Philadelphia ... | 1876 | 60 | 30,864 | 10,164,489 | 159 | 3,813,724 |
| Paris..... | 1878 | 60 | 40,366 | 16,032,725 | 194 | 2,531,650 |
| Sydney..... | 1879 | 26 | 9,345 | 1,117,536 | 210 | 200,000 |
| Melbourne | 1880 | .... | ..... | 1,330,279 | 210 | ..... |
| Fisheries Exhi- bition, London | 1883 | 9 | 3,000 | 2,703,051 | 147 | 585,000 |
| Health Exhibi- tion, London.. | 1884 | .... | ..... | 4,153,390 | 151 | 892,545 |
| Inventions Exhi- bition, London | 1885 | .... | ..... | 3,760,581 | 163 | 750,000 |
| Colonial and In- dian, London.. | 1886 | 13 | ..... | 5,550,745 | 164 | 1,025,000 |
| Glasgow..... | 1888 | .... | ..... | 5,748,379 | 161 | 566,330 |
| Paris..... | 1889 | 75½ | 55,000 | 28,149,353‡ | 185 | 8,300,000 |

* Buildings and covered structures.

† Receipts for admission.

‡ The largest number of visitors in any one day was 400,000.

MOST NORTHERN POINT REACHED BY ARCTIC EXPLORERS.

| YEAR. | EXPLORERS. | NO. | LATITUDE. |
|-----------------------------------|------------|------|-----------|
| 1607—Hudson | | 80d. | 23m. 00s. |
| 1773—Phipps (Lord Musgrove)..... | | 80d. | 48m. 00s. |
| 1806—Scoresby..... | | 81d. | 12m. 42s. |
| 1827—Parry..... | | 82d. | 45m. 30s. |
| 1874—Meyer (on land)..... | | 82d. | 09m. 00s. |
| 1875—Markham (Nare's Expedition). | | 83d. | 20m. 26s. |
| 1876—Payer..... | | 83d. | 07m. 00s. |
| 1884—Lockwood (Greely's Party)... | | 83d. | 24m. 00s. |

The distance from the farthest point of polar discovery to the pole itself is 460 miles. But this polar radius, though only 460 miles in extent, is covered by ice gorges and precipices of incredible difficulty, and frost is so severe that no instrument of human invention can measure its intensity, and it blisters the skin like extreme heat.

The greatest progress that has ever been made across these wildernesses of storm, of fury and desolation, was at the rate of six miles a day, the explorers often resting as many days as they had before traveled miles in a single day.

ANALYSIS OF VARIOUS ARTICLES OF FOOD.

111

| Articles. | Water. | Fibrid of Gluten. | Fat | Starch, Sugar & Gum. | Ash. | Starch. | Wood Fibers. | Mineral Matter. | Sugar. | Flour. | Blood and Salts. | Caseine. | Acid. | Albumen. | Gluten & Albumen. | Thine. | Gum. |
|---------------------------|--------|-------------------|--------|----------------------|-------|---------|--------------|-----------------|--------|--------|------------------|----------|-------|----------|-------------------|--------|-------|
| Apple..... | 87 | 33 | 1 | 6 | 2 1/2 | 60 1/2 | 11 1/2 | 1 3/4 | 4 1/2 | ... | ... | ... | ... | 1/4 | ... | ... | 4 1/2 |
| Barley..... | 10 1/2 | 5 1/2 | 3 | 48 | 2 | ... | 10 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Beans..... | 14 | 24 | 2 | ... | ... | ... | ... | ... | 10 1/2 | ... | ... | ... | ... | ... | ... | ... | ... |
| Beet root..... | 81 | 8 | ... | ... | ... | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Buckwheat flour..... | 14 1/2 | 8 1/2 | ... | 26 | 1 1/2 | 50 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Cheese, rich and old..... | 36 | ... | 30 1/2 | ... | 4 1/2 | ... | ... | ... | ... | ... | 29 | ... | ... | ... | ... | ... | ... |
| Cocoa bean..... | 5 | 17 | 56 | 22 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Coffee..... | 12 | 13 | 13 | 15 1/2 | 6 3/4 | ... | 34 | ... | ... | ... | ... | ... | 5 | ... | ... | 3/4 | ... |
| Cornmeal..... | 14 | 12 | 8 | 66 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Egg..... | 74 | ... | 10 1/2 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Haddock and herring..... | ... | 92 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Milk..... | 87 | ... | 3 | ... | 3/4 | ... | ... | ... | 4 3/4 | ... | ... | 4 1/2 | ... | ... | ... | ... | ... |
| Meat, butcher's..... | ... | 68 | 25 | ... | ... | ... | ... | ... | ... | ... | 7 | ... | ... | ... | ... | ... | ... |
| Pea..... | 15 | 24 | 2 | 20 | ... | 39 | ... | ... | ... | ... | ... | ... | ... | ... | 17 | ... | ... |
| Potato..... | 75 | 8 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Rice..... | 14 | 7 1/2 | 3/4 | 1 1/2 | 1/2 | 73 | 3 1/2 | 1/4 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Rye flour..... | 14 | 25 | ... | ... | 1 | 42 1/2 | ... | 1/2 | ... | 17 | ... | ... | ... | ... | ... | ... | ... |
| Tea..... | 5 | 25 | 4 | 21 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| Wheat..... | 14 | 16 | 1 | 67 | 1 | ... | ... | 1 | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| " bran..... | 13 | 18 | 9 | 63 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| " flour*..... | 16 | 10 | 2 | 72 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |
| " bread..... | 45 | 6 | 1 | 48 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... |

* Water absorbed by flour varies from 10 to 50 per cent. of the weight of the flour, the best quality absorbing the most. 100 lbs. flour yields 130 lbs. bread.

A List of 365 Principal Historical Events from 1492 to Date.

JANUARY.

- 1 New Year's Day.
- 2 Quakers free slaves, 1788.
- 3 Battle of Princeton, 1777.
- 4 National Fast, 1861.
- 5 Richmond burned, 1781.
- 6 Santa Anna president, 1853.
- 7 Millard Fillmore born, 1800.
- 8 Mississippi seceded, 1861.
- 9 New York founded, 1614.
- 10 Battle Middle Creek, Ky., 1862.
- 11 Arkansas Post surrendered, 1863.
- 12 Vicksburg fortified, 1861.
- 13 Gen. Taylor ordered to Mexico, 1846.
- 14 Peace declared, 1783.
- 15 Edward Everett died, 1865.
- 16 Napier appointed envoy to United States, 1857.
- 17 Benjamin Franklin born, 1706.
- 18 Georgia seceded, 1861.
- 19 Battle Mill Spring, Ky., 1862.
- 20 Independence United States recognized, 1783.
- 21 Fremont born, 1813.
- 22 Battle Frenchtown, 1813.
- 23 Battle Encarnacion, Mex., 1847.
- 24 President Johnson's imp. trial, 1868
- 25 Louisiana seceded, 1861.
- 26 Michigan admitted, 1837.
- 27 Audubon died, 1851.
- 28 William H. Prescott died, 1859.
- 29 Kansas admitted, 1861.
- 30 N. P. Banks born, 1816.
- 31 Str. Metropolis lost, 1878.

FEBRUARY.

- 1 Texas seceded, 1861.
- 2 Peace with Mexico, 1848.
- 3 Horace Greeley born, 1811.
- 4 Confederate Congress met, 1861.
- 5 Hatcher's Run, Va., 1865.
- 6 Fort Henry captured, 1862.
- 7 U. S. Bank suspends, 1841.
- 8 Jeff Davis elected President, 1861.
- 9 Bishop Waugh died, 1858.
- 10 Treaty of Paris, 1763.
- 11 Charleston evacuated, 1865.
- 12 A. Lincoln born, 1809.
- 13 Fernando Wood died, 1881.
- 14 St. Valentine's Day.
- 15 Bishop Vightman died, 1882.
- 16 Fort Donelson surrendered, 1862.
- 17 Columbia, S. C., burned, 1865.
- 18 Jeff Davis inaugurated, 1861.
- 19 First National Thanksgiving, 1795.
- 20 Battle Olistee, Fla., 1864.
- 21 Battle Valverde, N. M., 1861.
- 22 Washington born, 1732.
- 23 Nashville taken, 1862.
- 24 Peacock captured, 1813.
- 25 Battle Trenton, 1776.
- 26 Gen. Sickles acquitted, 1859.
- 27 Longfellow born; 1807.
- 28 Black Warrior seized, 1854.

MARCH.

- 1 Nebraska admitted, 1867.
- 2 Missouri admitted, 1821.
- 3 Florida admitted, 1845.
- 4 Vermont admitted, 1791.
- 5 Boston massacre, 1770.
- 6 Battle Pea Ridge, 1862.
- 7 Bible Society founded, 1804.
- 8 Wesley started for America, 1738.
- 9 Monitor destroys Merrimac, 1862.
- 10 McClellan crossed Potomac, 1862.
- 11 Benjamin West died, 1820.

- 12 Chicago flood, 1849.
- 13 Pocahontas died, 1617.
- 14 Jackson born, 1767.
- 15 Battle Guilford C. H., 1781.
- 16 Expunging Res. ad., 1837.
- 17 St. Patrick's Day.
- 18 Calhoun born, 1782.
- 19 Patent of Conn. issued, 1631.
- 20 Uncle Tom's Cabin pub., 1852.
- 21 Nevada admitted, 1864.
- 22 Stamp Act passed, 1765.
- 23 Battle Winchester, 1862.
- 24 Longfellow died, 1882.
- 25 Port Bill passed, 1774.
- 26 Gov. Winthrop died, 1640.
- 27 Vera Cruz taken, 1847.
- 28 Essex captured, 1814.
- 29 J. J. Astor died, 1848.
- 30 Crimean war ends, 1856.
- 31 Calhoun died, 1850.

APRIL

- 1 Battle Five Forks, 1865.
- 2 Jefferson born, 1743.
- 3 Richmond captured, 1865.
- 4 President Harrison died, 1841.
- 5 Yorktown besieged, 1862.
- 6 Washington elected, 1789.
- 7 Channing born, 1780.
- 8 Louisiana admitted, 1812.
- 9 Lee's surrender, 1865.
- 10 Modoc massacre, 1873.
- 11 Mobile evacuated, 1865.
- 12 Henry Clay born, 1777.
- 13 Fall of Sumter, 1862.
- 14 Lincoln shot, 1865.
- 15 First call for troops, 1861.
- 16 Slavery abolished D. C., 1862.
- 17 Benjamin Franklin died, 1790.
- 18 Battle Cerro Gordo, 1847.
- 19 Battle Lexington, 1775.
- 20 Plymouth, N. C., captured, 1864.
- 31 Norfolk Navy Yard captured, 1861.

- ~~22~~ Buchanan born, 1791.
- 23 Stephen A. Douglas born, 1831.
- 24 First newspaper published in America, 1704.
- 25 Bishop Ames died, 1879.
- 26 Johnston surrendered, 1865.
- 27 U. S. Grant born, 1822.
- 28 Maryland admitted, 1788.
- 29 Bishop Morris born, 1794.
- 30 Washington inaugurated, 1789.

MAY.

- 1 Seige of Fort Meigs, 1813.
- 2 Battle of Chancellorsville, 1863.
- 3 Columbus discovered Jamaica, 1494.
- 4 Yorktown evacuated, 1862.
- 5 Battle of Williamsburg, 1862.
- 6 Tennessee seceded, 1861.
- 7 Arkansas seceded, 1861.
- 8 Battle of Palo Alto, 1846.
- 9 Battle Resaca de la Palma, 1846.
- 10 Jeff Davis captured, 1865.
- 11 Minnesota admitted, 1858.
- 12 Crown Point captured, 1775.
- 13 Jamestown, Va., settled, 1607.
- 14 Battle Jackson, Miss., 1863.
- 15 Battle Resaca, Ga., 1864.
- 16 W. H. Seward born, 1801.
- 17 Great fire, St. Louis, 1849.
- 18 Matamoras captured, 1846.
- 19 Hawthorne died, 1864.
- 20 Lafayette died, 1834.
- 21 North Carolina seceded, 1861.
- 22 Assault on Vicksburg, 1863.
- 23 South Carolina admitted, 1778.
- 24 Brooklyn bridge opened, 1883.
- 25 Philadelphia Convention met, 1748.
- 26 Pequod massacre, 1637.
- 27 Fort Erie evacuated, 1813.
- 28 Noah Webster died, 1843.
- 29 Rhode Island admitted, 1790.
- 30 Congress met in Washington, 1808.
- 31 Battle Seven Pines, 1862.

JUNE.

- 1 Kentucky admitted, 1792.
- 2 Battle Cold Harbor, Va., 1864.
- 3 Battle Philippi, Va., 1861.
- 4 Port Pillow captured, 1862.
- 5 Battle Piedmont, Va., 1864.
- 6 Memphis taken, 1862.
- 7 United States Bank founded, 1791.
- 8 Jamestown, Va., abandoned, 1610.
- 9 Georgia chartered, 1732.
- 10 Battle Big Betnel, 1861.
- 11 Sherman arrives Kenesaw, 1864.
- 12 Bryant died, 1878.
- 13 Fugitive slave bill repealed, 1864.
- 14 Tax on tea ordered, 1767.
- 15 Arkansas admitted, 1836.
- 16 Battle Bunker Hill, 1775.
- 17 Charleston, Mass., burned, 1775.
- 18 War declared Great Britain, 1812.
- 19 Alabama sunk by Kearsarge, 1864.
- 20 United States flag adopted, 1777.
- 21 New Hampshire admitted, 1788.
- 22 Battle Craney Id., 1813.
- 23 Battle Springfield, N. J., 1780.
- 24 Labrador discovered, 1497.
- 25 Gen. Custer killed, 1876.
- 26 Seven days' fight, Virginia, 1862.
- 27 Vera Cruz surrendered, 1847.
- 28 Battle of Charleston, 1776.
- 29 Henry Clay died, 1852.
- 30 Guiteau hanged, 1882.

JULY.

- 1 Battle Gettysburg begun, 1863.
- 2 President Garfield shot, 1881.
- 3 Massacre of Wyoming, 1778.
- 4 Independence Day.
- 5 British captured Ticonderoga, 1777.
- 6 Battle Carthage, Mo., 1861.
- 7 Mrs. Surratt hanged, 1865.
- 8 Abercrombie defeated, 1758.
- 9 Braddock's defeat, 1755.

- 10 Columbus born, 1447.
- 11 J. Q. Adams born, 1767.
- 12 Hull invades Canada, 1812.
- 13 Draft riots, New York, 1863.
- 14 Second Chicago fire, 1874.
- 15 Stony Point captured, 1779.
- 16 Battle Point au Play, 1814.
- 17 Fort Mackinaw captured, 1812.
- 18 Assaults on Fort Wagner, 1863.
- 19 Great fire in New York, 1845.
- 20 Confederate Congress met, 1861.
- 21 First Battle Bull Run, 1861.
- 22 McPherson killed, 1864.
- 23 Battle Caloosahatchie, 1839.
- 24 Van Buren died, 1862.
- 25 Battle Lundy's Lane, 1814.
- 26 Louis Philippe died, 1850.
- 27 John Morgan captured, 1863.
- 28 Fighting ends at Atlanta, 1864.
- 29 Confederate soldiers paroled, 1865.
- 30 Chambersburg burned, 1864.
- 31 Battle Montmorenci, 1759.

AUGUST.

- 1 Columbus discovered mainland, 1498.
- 2 Battle Sandusky, 1813.
- 3 Columbus left Spain, 1492.
- 4 Iowa adopted Constitution, 1846.
- 5 Mobile forts attacked, 1864.
- 6 Ram Tennessee captured, 1864.
- 7 Great fire in New York, 1778.
- 8 Battle of Mackinaw, 1814.
- 9 Battle of Cedar Mt., Va., 1862.
- 10 Missouri admitted, 1821.
- 11 Davis Straits discovered, 1585.
- 12 New York rioters convicted, 1863.
- 13 Fort Erie bombarded, 1814.
- 14 Oswego taken, 1756.
- 15 Lafayette revisits United States, 1824.
- 16 Hull's surrender, 1812.
- 17 N. E. Courant established, 1721.
- 18 Battle Fishing Creek, 1780.

- 19 Guerriere captured, 1812.
- 20 Battle Contreras, 1847.
- 21 Lawrence, Kas., burned, 1863.
- 22 Yacht America wins, 1851.
- 23 New Mexico annexed, 1846.
- 24 Washington taken, 1814.
- 25 British army in Chesapeake, 1777.
- 26 Stamp Act riot, 1768.
- 27 Battle Long Island, 1776.
- 28 First cable message, 1858.
- 29 Capture of Hatteras, 1861.
- 30 William Penn died, 1718.
- 31 Battle Jonesboro, Ga., 1864.

SEPTEMBER.

- 1 Lopez garroted, 1851.
- 2 Atlanta evacuated, 1864.
- 3 Treaty of Paris, 1783.
- 4 Gen. Morgan killed, 1864.
- 5 Continental Congress met, 1774.
- 6 May Flower sailed, 1620.
- 7 Brazil declared independent, 1822.
- 8 Montreal surrendered, 1760.
- 9 California admitted, 1850.
- 10 Hudson River discovered, 1609.
- 11 Battle Brandywine, 1777.
- 12 Battle Chapultepec, 1847.
- 13 Battle Quebec, 1759.
- 14 Fulton's steamboat starts, 1807.
- 15 Fenimore Cooper born, 1789.
- 16 Battle Harlem Plains, 1776.
- 17 Battle Antietam, 1862.
- 18 Surrender of Quebec, 1759.
- 19 Battle Saratoga, 1777.
- 20 Capture of Lexington, Mo., 1861.
- 21 Andre captured, 1780.
- 22 Battle Fisher's Hill, Va., 1864.
- 23 Serapis captured, 1779.
- 24 Monterey surrendered, 1846.
- 25 Battle Montreal, 1775.
- 26 Philadelphia captured by British, 1777.
- 27 Steamer Artic lost, 1854.

- 28 Fort Harrison, Va., captured, 1864.
- 29 Draft in New York, 1862.
- 30 Peace treaty with France, 1800.

OCTOBER.

- 1 British troops arrived Boston, 1768.
- 2 Andre executed, 1780.
- 3 Blackhawk died, 1838.
- 4 Battle Corinth, 1862.
- 5 Tecumseh killed, 1813.
- 6 Peace proclaimed, 1783.
- 7 E. A. Poe died, 1849.
- 8 Battle Perryville, Ky., 1862.
- 9 Great Chicago fire, 1871.
- 10 B. West born, 1738.
- 11 Prince of Wales arrived in New York, 1860.
- 12 R. E. Lee died, 1870.
- 13 Battle of Queenstown, 1812.
- 14 William Penn born, 1644.
- 15 Chippewa Plains, 1814.
- 16 First newspaper in New York, 1725.
- 17 Burgoyne surrendered, 1777.
- 18 Sloop Frolic captured, 1812.
- 19 Surrender of Cornwallis, 1781.
- 20 Steamer Florida captured, 1864.
- 21 Battle Ball's Bluff, 1861.
- 22 Battle Fort Mercer, 1777.
- 23 Battle St. Regis, 1812.
- 24 Daniel Webster died, 1852.
- 25 Macedonian captured, 1812.
- 26 Fight of Chataqua, 1813.
- 27 Ram Albemarle destroyed, 1864.
- 28 Harvard College founded, 1636.
- 29 Battle White Plains, 1776.
- 30 Old John St. Church died, 1768.
- 31 Nevada admitted, 1864.

NOVEMBER.

- 1 Battle French Creek, 1813.
- 2 Erie Canal finished, 1825.
- 3 Bryant born, 1794.
- 4 Declaration of rights by Congress, 1774.
- 5 Grant's second election, 1872.

- 6 Lincoln elected, 1860.
- 7 Battle of Tippecanoe, 1811.
- 8 Mason and Slidell seized, 1861.
- 9 Mayflower arrived Cape Cod, 1620.
- 10 Dutch seized rule New York, 1674.
- 11 Battle Shryser's Field, 1813.
- 12 Conscription declared unconstitutional, 1863.
- 13 Montreal captured, 1775.
- 14 Sherman marched to sea, 1864.
- 15 Great fire in New York, 1835.
- 16 Fort Washington captured, 1776.
- 17 Jeff Davis threatens reprisal, 1862.
- 18 Battle Fish Dam, S. C., 1780.
- 19 Garfield born, 1831.
- 20 Battle Belle Isle, 1759.
- 21 North Carolina admitted, 1789.
- 22 Bishop Wiley died, 1884.
- 23 Bragg defeated, 1863.
- 24 Battle Lookout Mountain, 1863.
- 25 Evacuation New York, 1783.
- 26 Battle Mission Ridge, 1863.
- 27 Hoosac Tunnel opened, 1873.
- 28 Irving died, 1859.
- 29 Wendell Phillips born, 1811.
- 30 Revolutionary War ends, 1782.

DECEMBER.

- 1 Statue Washington unveiled, 1832.
- 2 John Brown executed, 1859.
- 3 Illinois admitted, 1818.
- 4 Alabama admitted, 1818.
- 5 Van Buren born, 1782.
- 6 Carver landed New England, 1620.
- 7 Delaware admitted, 1787.
- 8 Washington crossing Delaware, 1776.
- 9 Buffalo burned, 1813.
- 10 Mississippi admitted, 1817.
- 11 Pilgrims landed, 1620.
- 12 Pennsylvania admitted, 1787.
- 13 Battle Fredericksburg, Va., 1862.
- 14 Washington died, 1799.
- 15 Hartford convention, 1814.

- 16 Boston Tea Party, 1773.
- 17 General Bolivar died, 1830.
- 18 New Jersey admitted, 1787.
- 19 Massacre Narragansetts, 1675.
- 20 South Carolina seceded, 1860.
- 21 Savannah captured, 1864.
- 22 Embargo on American ships, 1807.
- 23 Washington resigned commission, 1783.
- 24 Fort Fisher stormed, 1864.
- 25 Christmas.
- 26 Major Anderson occupied Sumter, 1862.
- 27 Battle Chickasaw Bayou, 1862.
- 28 Iowa admitted, 1846.
- 29 Texas admitted, 1845.
- 30 New Mexico purchased, 1853.
- 31 Monitor founded, 1862.

--- MILES OF VARIOUS NATIONS.

| | |
|---------------------------------------|------------------|
| The English and American mile is..... | 1,760 yards. |
| The Scotch mile is..... | 1,924 " |
| The Irish mile is..... | 2,240 " |
| The German mile is..... | 8,106 " |
| The Dutch and Prussian mile is..... | 6,480 " |
| The Italian mile is..... | 1,766 " |
| The Vienna post mile is..... | 8,296 " |
| The Swiss mile is..... | 9,153 " |
| The Swedish and Danish mile is..... | 7,341.5 " |
| The Arabian mile is..... | 2,143 " |
| The Roman mile is..... | 1,628 or 2,025 " |
| The Werst mile is..... | 1,167 or 1,337 " |
| The Tuscan mile is..... | 1,808 " |
| The Turkish mile is..... | 1,826 " |
| The Flemish mile is..... | 6,869 " |

--- Facts About Postage Stamps.

The number of postage stamps used in a year is something enormous. For instance, the ordinary postal revenue for the year ending June 30, 1891, exclusive of the money order business, was \$65,065,293.87. Of this \$41,432,129.50 came from letter postage. The bulk of this is, of course, in 2-cent stamps, and it is safe to put the whole number of this denomination used at more than two billions per annum.

THE SILVER QUESTION.

IN all civilized countries either gold or silver has been adopted as the standard of monetary value. The following is a list of the most important countries in the world, divided into three groups, those using (1) a gold standard, (2) a silver standard, (3) a double or variable standard. Of these last it may be said that the term "variable" is preferable to that of "double," inasmuch as the double standard never exists at one and the same time, gold or silver becoming alternately the standard, as the state of the exchanges makes the one or the other the more desirable as the practical medium of exchange.

| Gold Standard. | | Silver Standard. | | Double or Variable Standard. |
|---------------------|-------------------|------------------|----------|------------------------------|
| Australia. | Great Britain and | Austria. | India. | Argentine Re- |
| Brazil. | Ireland. | Bolivia. | Japan. | Italy. |
| British Colonies in | Liberia. | China. | Mexico. | Netherlands. |
| Africa. | New Zealand. | Cochin China. | Peru. | Roumania. |
| British N. America. | Norway. | Colombia. | Russia. | Spain. |
| Denmark. | Portugal. | Ecuador. | Tripoli. | Switzerland. |
| Egypt. | Sweden. | E. Indian Isles. | | Venezuela. |
| German Empire. | Turkey. | Hungary. | | United States |
| | | | | Hayti. |

RELATIVE HARDNESS OF WOODS.—Taking shell bark hickory as the highest standard of our forest trees, and calling that 100, other trees will compare with it for hardness as follows;

| | | | |
|-------------------------|-----|--------------------|----|
| Shell bark Hickory..... | 100 | Yellow Oak..... | 60 |
| Pignut Hickory..... | 96 | Hard Maple..... | 56 |
| White Oak..... | 84 | White Elm..... | 58 |
| White Ash..... | 77 | Red Cedar..... | 56 |
| Dogwood..... | 75 | Wild Cherry..... | 55 |
| Scrub Oak..... | 73 | Yellow Pine..... | 54 |
| White Hazel..... | 72 | Chestnut..... | 52 |
| Apple Tree..... | 7 | Yellow Poplar..... | 51 |
| Red Oak..... | 69 | Butternut..... | 43 |
| White Beech..... | 65 | White Birch..... | 43 |
| Black Walnut..... | 65 | White Pine..... | 30 |
| Black Birch..... | 62 | | |

Timber intended for posts, is rendered almost proof against rot by thorough seasoning, charring, and immersion in hot coal tar.

The slide of Alpnach, extending from Mount Pilatus to Lake Lucerne, a distance of 8 miles, is composed of 25,000 trees, stripped of their bark, and laid at an inclination of 10 to 18 degrees. Trees placed in the slide rush from the mountain into the lake in 6 minutes.

The Alps comprise about 180 mountains, from 4,000 to 15,732 feet high, the latter being the height of Mont Blanc, the highest spot in Europe. The summit is a sharp ridge, like the roof of a house, consisting of nearly vertical granite rocks. The ascent requires 2 days, 6 or 8 guides are required, and each guide is paid 100 francs (\$20.00). It was ascended by 2 natives, Jacques Belmat and Dr. Packard, Aug. 8, 1786, at 6 a. m. They staid up 30 minutes, with the thermometer at 14 degrees below the freezing point. The provisions froze in their pockets; their faces were frost-bitten, lips swollen, and their sight much weakened, but they soon recovered on their descent. De Saussure records in his ascent August 2, 1760, that the color of the sky was deep blue; the stars were visible in the shade; the barometer sunk to 16.08 inches (being 27.08 in Geneva); the thermometer was 26½ degrees, in the sun 29 degrees (being 87 degrees at Geneva). The thin air works the blood into a high fever, you feel as if you hardly touched the ground, and you scarcely make yourself heard. A French woman, Mademoiselle d'Angeville, ascended in September, 1840, being dragged up the last 1,200 feet by guides, and crying out: "If I die, carry me to the top." When there, she made them lift her up, that she might boast she had been higher than any man in Europe. The ascent of these awful solitudes is most perilous, owing to the narrow paths, tremendous ravines, icy barriers, precipices, etc. In many places every step has to be cut in the ice, the party being tied to each other by ropes, so that if one slips he may be held up by the rest, and silence is enforced, lest the noise of talking should dislodge the avalanches of the Aiguille du Midi. The view from the mountain is inexpressibly grand. On the Alps, the limit of the vine is an elevation of 1,600 feet;

below 1,000 feet, figs, oranges and olives are produced. The limit of the oak is 3,800 ft., of the chestnut 2,800 ft., of the pine 6,500 ft., of heaths and furze to 8,700 and 9,700 ft.; and perpetual snow exists at an elevation of 8,200 feet.

On the Andes, in lat. 2 degrees, the limit of perpetual snow is 14,760 ft.; in Mexico, lat. 19 degrees, the limit is 13,800 ft.; on the peak of Teneriffe, 11,454 ft.; on Mount Etna, 9,000 ft.; on the Caucasus, 9,900 ft.; the Pyrenees, 8,400 ft.; in Lapland, 3,100 ft.; in Iceland, 2,890 ft. The walnut ceases to grow at an elevation of 3,600 ft.; the yellow pine at 6,200 ft.; the Ash at 4,800 ft., and the Fir at 6,700 ft. The loftiest inhabited spot on the globe is the Port House of Ancamarca, on the Andes, in Peru, 16,000 feet above the level of the sea. The 14th peak of the Himalayas, in Asia, 25,659 feet high, is the loftiest mountain in the world.

Lauterbrunnen is a deep part of an Alpine pass, where the sun hardly shines in winter. It abounds with falls, the most remarkable of which is the Staubbach, which falls over the Balm precipice in a drizzling spray from a height of 925 feet; best viewed in the morning sun or by moonlight. In general, it is like a gauze veil, with rainbows dancing up and down it, and when clouds hide the top of the mountain, it seems as poured out of the sky.

In Canada, the falls of Montmorenci are 250 feet high, the falls of Niagara (the Horse Shoe Falls) are 158 feet high and 2,000 feet wide, the American Falls are 164 feet high and 900 feet wide, The Yosemite Valley Falls are 2,600 feet high, and the Ribbon Falls of the Yosemite are 3,300 feet high. The water-fall of the Arve, in Bavaria, is 2,000 feet.

THE PERIODS OF GESTATION are the same in the horse and ass, 11 months each, camel 12 months, elephant 2 years, lion 5 months, buffalo 12 months, in the human female 9 months, cow 9 months, sheep 5 months, dog 9 weeks, cat 8 weeks, sow 16 weeks, she wolf from 90 to 95 days. The goose sits 30 days, swans 42, hens 21, ducks 30, peahens and turkeys 28, canaries 14, pigeons 14, parrots 40.

AGES OF ANIMALS, &c. — Elephant 100 years and upward, Rhinoceros 20, Camel 100, Lion 25 to 70, Tigers, Leopards, Jaguars and Hyenas (in confinement) about 25 years, Beaver 50 years, Deer 20, Wolf 20, Fox 14 to 16, Llamas 15, Chamois 25, Monkeys and Baboons 16 to 18 years, Hare 8, Squirrel 7, Rabbit 7, Swine 25, Stag under 50, Horse 30, Ass 30, Sheep under 10, Cow 20, Ox 30, Swans, Parrots and Ravens 200, Eagle 100, Geese 80, Hens and Pigeons 10 to 16, Hawks 36 to 40, Cranes 24, Blackbird 10 to 12, Peacock 20, Pelican 40 to 50, Thrush 8 to 10, Wren 2 to 3, Nightingale 15, Blackcap 15, Linnet 14 to 23, Goldfinch 20 to 24, Redbreast 10 to 12, Skylark 10 to 30, Titlark 5 to 6, Chaffinch 20 to 24, Starling 10 to 12, Carp 70 to 150, Pike 30 to 40, Salmon 16, Codfish 14 to 17, Eel 10, Crocodile 100, Tortoise 100 to 200, Whale estimated 1,000, Queen Bees live 4 years, Drones 4 months, Working Bees 6 months.

The melody of singing birds ranks as follows: The nightingale first, then the linnet, titlark, sky lark and wood lark. The

mocking bird has the greatest powers of imitation, the robin and goldfinch are superior in vigorous notes.

The condor of Peru has spread wings 40 feet, feathers 20 rect, quills 8 inches round.

In England, a quarter of wheat, comprising 8 bushels, yield 14 bushels $2\frac{1}{2}$ pecks, divided into seven distinct kinds of flour, as follows: Fine flour, 5 bushels 3 pecks; bran, 3 bushels; twenty-penny, 3 bushels; seconds, 2 pecks; pollard, 2 bushels; fine middlings, 1 peck; coarse ditto, 1 peck.

The ancient Greek phalanx comprised 8,000 men, forming a square battalion, with spears crossing each other, and shields united.

The Roman legion was composed of 6,000 men, comprising 17 cohorts of 600 men each, with 300 horsemen.

The ancient battering ram was of massive timber, 60 to 100 feet long, fitted with an iron head. It was erected under shelter to protect the 60 or 100 men required to work it. The largest was equal in force to a 36-lb. shot from a cannon.

PILE DRIVING ON SANDY SOILS.—The greatest force will not effect a penetration exceeding 15 feet.

VARIOUS SIZES OF TYPE.—It requires 205 lines of Diamond type to make 12 inches, of Pearl 178, of Ruby 166, of Nonpareil 143, of Minion 128, of Brevier $112\frac{1}{2}$, of Bourgeois $102\frac{1}{2}$, of Long Primer 89, of Small Pica 83, of Pica $71\frac{1}{2}$, of English 64.

Wire ropes for the transmission of power vary in size from $\frac{3}{8}$ to $\frac{7}{8}$ inch diam. for from 3 to 300 horse power; to promote flexibility, the rope, made of iron, steel, or copper wire, as may be preferred, is provided with a core of hemp, and the speed is 1 mile per minute, more or less, as desired. The rope should run on a well-balanced, grooved, cast iron wheel, of from 4 to 15 feet diam., according as the transmitted power ranges from 3 to 300 horse; the groove should be well cushioned with soft material, as leather or rubber, for the formation of a durable bed for the rope. With good care the rope will last from 3 to 5 years.

Cannon balls go furthest at an elevation of 30 degrees, and less as the balls are less; the range is furthest when fired from west to east in the direction of the earth's motion, which for the diurnal rotation on its axis, is at the rate of 1,037 miles per hour, and in its orbit, 66,092 miles.

The air's resistance is such, that a cannon ball of 3 lbs. weight, diameter, 2.78 ins. moving with a velocity of 1,800 ft. per second, is resisted by a force equal to 156 lbs.

Brick-layers ascend ladders with loads of 90 lbs., 1 foot per second. There are 484 bricks in a cubic yard, and 4,356 in a rod.

A power of 250 tons is necessary to start a vessel weighing 3,000 tons over greased slides on a marine railway, when in motion, 150 tons only is required.

A modern dredging machine, 123 ft. long, beam 26 ft., breadth over all, 11 ft., will raise 180 tons of mud and clay per hour, 11 feet from water-line.

In tanning, 4 lbs. of oak bark make 1 lb. of leather.

Flame is quenched in air containing 3 per cent. of carbonic acid; the same percentage is fatal to animal life.

100 parts of oak make nearly 23 of charcoal; beech 21, deal 19, apple 23.7, elm 23, ash 25, birch 24, maple 22.8, willow 18, poplar 20, red pine 22.10, white pine 23. The charcoal used in gunpowder is made from willow, alder, and a few other woods. The charred timber found in the ruins of Herculaneum has undergone no change in 1,800 years.

Four volumes of nitrogen, and one of oxygen compose atmospheric air in all localities on the globe.

Air extracted from pure water, under an air pump, contains 34.8 per cent. of oxygen. Fish breathe this air, respiring about 35 times per minute. The oxyhydrogen lime light may be seen from mountains at the distance of 200 miles round.

Lightning is reflected 150 to 200 miles.

1,000 cubic feet of 13 candle gas is equivalent to over 7 gals. of sperm oil, 52.9 lbs. of tallow candles, and over 44 lbs. of sperm candles.

The time occupied by gas in traveling from a gas well (in Pennsylvania) through 32 miles of pipe was 22 minutes, pressure at the well was 55 lbs. per inch, pressure at discharge 49 lbs.

The flight of wild ducks is estimated at 90 miles per hour, that of the swift at 200 miles, carrier pigeons 38 miles, swallows 60 miles, migratory birds have crossed the Mediterranean at a speed of 120 miles per hour.

At birth, the beats of the pulse are from 165 to 104, and the inspirations of breath from 70 to 23. From 15 to 20, the pulsations are from 90 to 57, the inspirations, from 24 to 16; from 29 to 50, the pulsations are 112 to 56, the inspirations, 23 to 11. In usual states it is 4 to 1. The action of the heart distributes 2 ozs. of blood from 70 to 80 times in a minute.

The mean heat of the human body is 98 degs. and of the skin 90 degs. Tea and coffee are usually drank at 110 degs.

The deepest coal mine in England is at Killingworth, near Newcastle, and the mean annual temperature at 400 yards below the surface is 77 degrees, and at 300 yards 70 degrees, while at the surface it is but 48 degrees, being 1 degree of increase for every 15 yards. This explains the origin of hot springs, for at 3,300 yards the heat would be equal to boiling water, taking 20 yards to a degree. The heat of the Bath waters is 116 degrees, hence they would appear to rise 1,320 yards.

Peron relates that at the depth of 2,144 feet in the sea the thermometer falls to 45 degrees, when it is 86 degrees at the surface.

Swenberg and Fourier calculate the temperature of the celestial spaces at 50 degrees centigrade below freezing.

In Northern Siberia the ground is frozen permanently to the depth of 660 feet, and only thaws to the extent of 3 or 4 feet in summer. Below 660 feet internal heat begins.

River water contains about 30 grs. of solid matter in every cubic foot. Fresh water springs of great size abound under the sea. Perhaps the most remarkable springs exist in California, where

they are noted for producing sulphuric acid, ink, and other remarkable products.

St. Winifred's Well, in England, evolves 120 tons of water per minute, furnishing abundant water power to drive 11 mills within little more than a mile.

The Nile has a fall of 6 ins. in 1,000 miles. The rise of the river commences in June, continuing until the middle of August, attaining an elevation of from 24 to 26 feet, and flowing the valley of Egypt 12 miles wide. In 1829 it rose to 26 cubits, by which 30,000 persons were drowned. It is a terrible climate to live in, owing to the festering heat and detestable exhalations from the mud, etc., left on the retiring of the Nile, which adds about 4 inches to the soil in a century, and encroaches on the sea 16 feet every year. Bricks have been found at the depth of 60 feet, showing the vast antiquity of the country. In productiveness of soil it is excelled by no other in the world.

Belzoni considered the tract between the first and second cataract of the Nile as the hottest on the globe, owing to there being no rain. The natives do not credit the phenomenon of water falling from above. Hence it is that all monuments are so nicely preserved. Buckingham found a building left unfinished about 4,000 years ago, and the chalk marks on the stones were still perfect.

Pompey's Pillar is 92 feet high, and $27\frac{1}{2}$ round at the base.

The French removed a red granite column 95 feet high, weighing 210 tons, from Thebes, and carried it to Paris. The display of costly architectural ruins at Thebes is one of the most astonishing to be seen anywhere in the world. The ruins and costly buildings in old Eastern countries, are so vast in their proportions and so many in number that it would require volumes to describe them.

Babel, now called Birs Nimroud, built at Babylon by Belus, was used as an observatory and as a temple of the Sun. It was composed of 8 square towers, one over the other, in all 670 feet high, and the same dimensions on each side on the ground.

The Coliseum at Rome, built by Vespasian for 100,000 spectators, was in its longest diameter 615.5 feet, and in the shortest 510. embraced $5\frac{1}{2}$ acres, and was 120 feet high.

Eight aqueducts supplied ancient Rome with water, delivering 40 millions of cubic feet daily. That of Claudia was 47 miles long and 100 feet high, so as to furnish the hills. Martia was 41 miles, of which 37 were on 7,000 acres 70 feet high. These vast erections would never have been built had the Romans known that water always rises to its own level.

The Temple of Diana, at Ephesus, was 425 feet long and 225 feet broad, with 127 columns, 60 feet high, to support the roof. It was 220 years in building.

Solomon's Temple, built B. C. 1014, was 60 cubits or 107 feet in length, the breadth 20 cubits or 36 feet, and the height 30 cubits or 54 feet. The porch was 36 feet long and 18 feet wide.

The largest one of the Egyptian pyramids is 543 feet high, 693 feet on the sides, and its base covers 11 acres. The layers of stones are 208 in number. Many stones are over 30 feet long, 4 broad and 3 thick.

The Temple of Ypsambul, in Nubia, is enormously massive and cut out of the solid rock. Belzoni found in it 4 immense figures, 65 feet high, 25 feet over the shoulders, with a face of 7 feet and the ears over 3 feet.

Sesostris erected in the temple in Memphis immense statues of himself and his wife, 50 feet high, and of his children, 28 feet.

In the Temple of the Sun, at Baalbec, are stones more than 60 feet long, 24 feet thick and 16 broad, each embracing 23,000 cubic feet, cut, squared, sculptured and transported from neighboring quarries. Six enormous columns are each 72 feet high, composed of 3 stones 7 feet in diameter. Sesostris is credited with having transported from the mountains of Arabia a rock 32 feet wide and 240 feet long.

The engineering appliances used by the ancients in the movement of these immense masses are but imperfectly understood at the present day.

During modern times, a block of granite weighing 1,217 tons, now used as the pedestal of the equestrian statue of Peter the Great, at St. Petersburg, was transported 4 miles by land over a railway and 13 miles in a vast caisson by water. The railway consisted of two lines of timber furnished with hard metal grooves; between these grooves were placed spheres of hard brass about 6 inches in diameter. On these spheres the frame with its massive load was easily moved by 60 men, working at capstans with treble purchase blocks. •

In 1716 Swedenborg contrived to transport (on rolling machines of his own invention) over valleys and mountains, 2 galleys, 5 large boats and 1 sloop, from Stromstadt to Iderfjol (which divides Sweden from Norway on the South), a distance of 14 miles, by which means Charles XII. was able to carry on his plans, and under cover of the galleys and boats to transport on pontoons his heavy artillery to the very walls of Frederickshall.

As an exponent of the laws of friction, it may be stated that a square stone weighing 1,080 lbs. which required a force of 758 lbs. to drag it along the floor of a quarry, roughly chiseled, required only a force of 22 lbs. to move it when mounted on a platform and rollers over a plank floor.

Water is the absolute master, former and secondary agent of the power of motion in everything terrestrial. It is the irresistible power which elaborates everything, and the waters contain more organized beings than the land.

Rivers hold in suspension 100th of their volume (more or less) of mud, so that if 36 cubic miles of water (the estimated quantity) flow daily into the sea, 0.36 cubic miles of soil are daily displaced. The Rhine carries to the sea every day 145,980 cubic feet of mud. The Po carries out the land 228 feet per annum, consequently Adria which 2,500 years ago was on the sea, is now over 20 miles from it.

The enormous amount of alluvium deposited by the Mississippi is almost incalculable, and constantly renders necessary extensive engineering operations in order to remove the impediments to navigation.

Foreign Nations and their Rulers.

WITH POPULATION, AREA IN SQUARE MILES, CAPITAL, FORMS OF GOVERNMENT, RULERS, ETC.

| COUNTRIES. | Population. | Square Miles. | Capitals. | Form of Government. | Present Head. | Title. | Accessor. | Present Age. |
|---------------------|-------------|---------------|----------------|---------------------|---------------------|----------|-----------|--------------|
| China..... | 404,180,000 | 4,179,559 | Peking..... | Abs. Desp | Tsai'tien..... | Emp.... | 1875 | 20 |
| British Empire.... | 315,855,000 | 8,991,204 | London..... | Lim. Mon | Victoria..... | Queen.. | 1837 | 73 |
| Russian Empire.... | 202,683,124 | 8,459,229 | St. Petersburg | Abs. Mon | Alexander III..... | Emp.... | 1881 | 46 |
| France & Colonies. | 63,67,048 | 970,477 | Paris..... | Republic. | Carnot..... | Pres.... | 1887 | 54 |
| United States..... | ..... | 3,602,990 | Washington .. | Republic. | Benj. Harrison..... | Pres.... | 1889 | 58 |
| German Empire.... | 45,234,061 | 211,168 | Berlin | Lim. Mon | Wilhelm II..... | Emp.... | 1888 | 32 |
| Austro-Hung. Emp | 40,627,231 | 261,591 | Vienna..... | Lim. Mon | Francis Joseph I.. | Emp.... | 1848 | 61 |
| Japan..... | 39,069,007 | 147,669 | Tokio | Lim. Mon | Mutsuhito..... | Emp.... | 1867 | 39 |
| Holland & Colonies | 33,042,238 | 778,187 | The Hague.... | Lim. Mon | William III..... | King.... | 1849 | 74 |
| Turkish Empire.... | 33,359,787 | 1,731,280 | Constantin'ple | Abs. Mon | Abdul Hamid II.... | Sultan.. | 1876 | 49 |
| Italy..... | 30,565,253 | 114,410 | Rome..... | Lim. Mon | Humbert..... | King.... | 1878 | 47 |
| Spain & Colonies... | 24,872,621 | 361,953 | Madrid | Lim. Mon | Alfonso XIII..... | King.... | ..... | 5 |
| Sokoto..... | 12,600,000 | 178,000 | Sokoto..... | Abs. Desp | ..... | Sultan.. | ..... | .. |
| Corea..... | 10,519,000 | 91,430 | Suel..... | Monarchy | Li-hi ..... | ..... | 1864 | .. |
| Brazil..... | 14,002,335 | 3,209,878 | Rio de Janeiro | Republic. | Fonseca..... | Pres.... | 1889 | .. |
| Mexico | 11,388,664 | 551,177 | Mexico | Republic. | Porfirio Diaz..... | Pres.... | 1884 | .. |
| Congo State..... | 27,000,000 | 1,056,200 | ..... | Fr. State. | Leopold..... | So'er'gn | 1876 | 56 |
| Persia..... | 7,653,600 | 636,000 | Teheran | Abs. Desp | Nasser ed Deen.... | Shah.... | 1848 | 60 |

FOREIGN NATIONS AND THEIR RULERS, ETC.—(Continued).

| COUNTRIES | Population. | Square Miles. | Capitals. | Form of Government. | Present Head. | Title. | Accessor. | Present Age. |
|---------------------|-------------|---------------|---------------|---------------------|-------------------|----------|-----------|--------------|
| Portugal & Colonies | 7,249,050 | 240,691 | Lisbon..... | Lim. Mon | Carlos I..... | King.... | 1889 | 28 |
| Egypt..... | 6,806,381 | 494,000 | Cairo..... | Abs. Mon | Mohammed Teyfik | Khedive | 1879 | 39 |
| Sweden & Norway. | 6,554,448 | 295,714 | Stockholm.... | Lim. Mon | Oscar II..... | King.... | 1872 | 62 |
| Morocco..... | 6,500,000 | 314,000 | Fez..... | Abs. Desp | Mulai Hassan.... | Sultan.. | 1873 | 60 |
| Belgium..... | 6,030,043 | 11,373 | Brussels..... | Lim. Mon | Leopold II..... | King.... | 1865 | 56 |
| Siam..... | 5,700,000 | 280,550 | Bangkok..... | Abs. Desp | Knulalonkorn I.. | King.... | 1868 | 38 |
| Roumania..... | 5,376,000 | 46,314 | Bucharest.... | Lim. Mon | Charles I..... | Prince.. | 1866 | 52 |
| Columbia..... | 4,000,000 | 504,773 | Bogoto..... | Republic. | Rafael Nunez.... | Pres.... | 1884 | .. |
| Afghanistan..... | 4,000,000 | 279,000 | Cabul..... | Abs. Desp | Abdur'hm'n Kahn | Amir... | 1880 | .. |
| Argentine Republic | 3,026,000 | 109,513 | Buenos Ayres. | Republic. | Julio A. Roca.... | Pres.... | 1880 | .. |
| Madagascar..... | 3,000,000 | 228,570 | Antananarivo. | Abs. Desp | Ranavalo III..... | Queen... | 1883 | 30 |
| Abyssinia..... | 7,360,000 | 244,000 | ..... | Abs. Desp | Menelek II..... | Sultan.. | 1889 | .. |
| Saxony..... | 3,182,003 | 5,856 | Dresden..... | Lim. Mon | Albert..... | King.... | 1873 | 63 |
| Peru..... | 2,970,000 | 805,040 | Lima..... | Republic. | Caceres..... | Pres.... | 1886 | .. |
| Switzerland..... | 2,917,819 | 15,981 | Berne..... | Republic. | L. Ruchonnet.... | Pres.... | 1890 | .. |
| Bolivia..... | 2,325,000 | 772,548 | Sucre..... | Republic. | Aniceto Arce..... | Pres.... | 1888 | .. |
| Bokhara..... | 2,130,000 | 92,300 | Samarcand.... | Abs. Desp | Abdul Ahad..... | Ameer.. | 1885 | 31 |
| Venezuela..... | 2,121,988 | 632,695 | Caracas..... | Republic. | Palacio..... | Pres.... | 1890 | .. |
| Chili..... | 2,665,926 | 307,525 | Santiago..... | Republic. | Balmaceda..... | Pres.... | 1886 | .. |
| Denmark..... | 2,045,179 | 14,842 | Copenhagen.. | Lim. Mon | Christian IX..... | King.... | 1863 | 73 |

FOREIGN NATIONS AND THEIR RULERS, ETC.—(Continued).

| COUNTRIES. | Population. | Square Miles. | Capitals. | Form of Government. | Present Head. | Title. | Accessor. | Present Age. |
|---------------------|-------------|---------------|----------------|---------------------|--------------------|-----------|-----------|--------------|
| Bulgaria..... | 3,154,375 | 24,700 | Sofia..... | Lim. Mon | Ferdinand..... | Prince... | 1886 | 30 |
| Greece..... | 2,187,208 | 25,041 | Athens..... | Lim. Mon | George I..... | King.... | 1864 | 46 |
| Wurtemberg..... | 1,995,185 | 7,619 | Stuttgart..... | Lim. Mon | Charles I..... | King.... | 1864 | 68 |
| Servia..... | 2,013,691 | 18,855 | Belgrade..... | Lim. Mon | Alexander I..... | King.... | 1882 | 15 |
| Oman..... | 1,600,000 | 82,000 | Muscat..... | Abs. Mon | Seyyid fin Turki.. | Sultan.. | 1888 | .. |
| Guatemala..... | 1,427,116 | 46,774 | N'wGuat'mala | Republic. | M. L. Barillas.... | Pres.... | 1886 | .. |
| Ecuador..... | 1,146,000 | 248,312 | Quito..... | Republic. | Flores..... | Pres.... | 1888 | .. |
| Tripoli..... | 1,010,000 | 399,000 | Tripoli..... | Abs. Mon | Ahmed Rassim.... | Gov. Gen | 1881 | .. |
| Transvaal..... | 800,000 | 110,193 | Pretoria..... | Republic. | Kruger..... | Pres.... | 1883 | .. |
| Salvador..... | 664,513 | 7,228 | San Salvador.. | Republic. | Fr. Menendez.... | Pres.... | 1887 | .. |
| Uruguay..... | 651,112 | 72,112 | Montevideo.... | Republic. | Hereira y Obes.... | Pres.... | 1890 | .. |
| Paraguay..... | 476,000 | 92,000 | Asuncion..... | Republic. | Escobar..... | Pres.... | 1886 | .. |
| Honduras..... | 458,000 | 46,400 | Tegucigalpa.. | Republic. | Louiz Bogran..... | Pres.... | 1883 | .. |
| Nicaragua..... | 400,000 | 51,660 | Managua..... | Republic. | Guera..... | Pres.... | 1884 | .. |
| Dominica..... | 300,000 | 20,596 | San Domingo.. | Republic. | Gen. Bellini..... | Pres.... | 1860 | 50 |
| Montenegro..... | 245,380 | 3,630 | Cetigno..... | Abs. Mon | Nicholas..... | Prince.. | 1885 | .. |
| Costa Rica..... | 205,730 | 19,985 | Jan Jose..... | Republic. | Bernado Soto..... | Pres.... | 1889 | .. |
| Orange Free State.. | 133,518 | 41,484 | Bloemfontein.. | Republic. | Judge Reitz..... | Pres.... | 1889 | .. |
| Hayti..... | 572,000 | 10,204 | Port-au-Prince | Republic. | Hyppolite..... | Pres.... | 1889 | .. |
| Hawaii..... | 80,578 | 6,677 | Honolulu..... | Lim. Mon | Lilimokalani..... | Queen... | 1891 | .. |

The Mayflower's Passengers.

A true list of the male passengers who landed at Plymouth in the Mayflower.

| | |
|-----------------------|-------------------------|
| Mr. Isaac Allerton, | Richard Gardiner, |
| John Alden, | John Howland, |
| John Allerton, | Mr. Stephen Hopkins, |
| Mr. William Bradford, | Edward Leister, |
| Mr. William Brewster, | Mr. Christopher Martin, |
| John Billington, | Mr. William Mullins, |
| Peter Brown, | Edmund Margeson, |
| Richard Britterage, | Degony Priest, |
| Mr. John Carver, | Thomas Rogers, |
| Francis Cook, | John Rigdale, |
| James Chilton. | Captain Miles Standish, |
| John Crackston, | George Soule, |
| Richard Clarke, | Edward Tilly, |
| Edward Dotey, | John Tilly, |
| Francis Eaton, | Thomas Tinker, |
| Thomas English, | John Turner, |
| Mr. Samuel Fuller. | Mr. Edward Winslow, |
| Edward Fuller, | Mr. William White, |
| Moses Fletcher, | Mr. Richard Warren, |
| John Goodman, | Thomas Williams, |
| | Gilbert Winslow. |

AND SERVANTS AS FOLLOWS;

| | | |
|----------|------------|-----------|
| Carter, | Langemore, | Sampson, |
| Coper, | Latham, | Story, |
| Ely, | Minter, | Thompson, |
| Holbeck, | More, | Trevore, |
| Hooke, | Prower, | Wilder. |

The Eleven Great Wonders in America.

Croton Aqueduct, in New York City.

City Park, Philadelphia, Pennsylvania. The largest park in the world.

Lake Superior. The largest lake in the world.

Mammoth Cave, in Kentucky.

Niagara Falls. A sheet of water three-quarters of a mile wide, with a fall of 175 feet.

Natural Bridge, over Cedar Creek, in Virginia.

New State Capitol, at Albany, N. Y.

New York and Brooklyn Bridge.

The Central Park, in New York City.

Washington Monument, Washington, D. C., 555 feet high.

Yosemite Valley, California; 57 miles from Coulterville. A valley from 8 to 10 miles long, and about one mile wide. Has very steep slopes about 3,500 feet high; has a perpendicular precipice 3,089 feet high; a rock almost perpendicular, 3,270 feet high; and waterfalls from 700 to 1,000.

FACTS ABOUT THE HUMAN BODY.

The weight of the male infant at birth is 7 lbs. avoirdupois; that of the female is not quite $6\frac{1}{2}$ lbs. The maximum weight ($140\frac{1}{2}$ lbs.) of the male is attained at the age of 40; that of the female (nearly 124 lbs.) is not attained until 50; from which ages they decline afterwards; the male to $127\frac{1}{2}$ lbs., the female to 100 lbs., nearly a stone. The full-grown adult is 20 times as heavy as a new-born infant. In the first year he triples his weight, afterwards the growth proceeds in geometrical progression, so that if 50 infants in their first year weigh 1,000 lbs., they will in the second weigh 1,210 lbs.; in the third 1,331; in the fourth 1,464 lbs.; the term remaining very constant up to the ages of 11-12 in females, and 12-13 in males, where it must be nearly doubled; afterwards it may be continued, and will be found nearly correct up to the age of 18 or 19, when the growth proceeds very slowly. At an equality of age the male is generally heavier than the female. Towards the age of 12 years only an individual of each sex has the same weight. The male attains the maximum weight at about the age of 40, and he begins to lose it very sensibly towards 60. At 80 he loses about 13.2328 lbs., and the stature is diminished 2.756 inches. Females attain their maximum weight at about 50. The mean weight of a mature man is 140 lbs., and of an average woman 94 lbs. In old age they lose about 12 or 14 lbs. Men weigh most at 40, women at 50, and begin to lose weight at 60. The mean weight of both sexes in old age is that which they had at 19.

When the male and female have assumed their complete development they weigh almost exactly 20 times as much as at birth, while the stature is about $3\frac{1}{2}$ times greater.

Children lose weight during the first three days after birth; at the age of a week they sensibly increase; after one year they triple their weight; then

they require six years to double their weight, and 13 to quadruple it.

It has been computed that nearly two years' sickness is experienced by every person before he is 70 years old, and therefore that 10 days per annum is the average sickness of human life. Till 40 it is but hair, and after 50 it rapidly increases. The mixed and fanciful diet of man is considered the cause of numerous diseases from which animals are exempt. Many diseases have abated with changes of diet, and others are virulent in particular countries, arising from peculiarities.

Human Longevity.—Of 100,000 male and female children, in the first month they are reduced to 90,396, or nearly a tenth. In the second, to 87,936. In the third, to 86,175. In the fourth, to 84,720. In the fifth, to 83,571. In the sixth, to 82,526, and by the end of the first year to 77,528, the deaths being 2 to 9. The next four years reduces the 77,528 to 62,448, indicating 37,552 deaths before the completion of the fifth year.

At 25 years the 100,000 are half, or 49,995; at 52, one-third. At 58½ a fourth, or 25,000; at 67, a fifth, at 76, a tenth; at 81, a twentieth, or 5,000; and ten attain 100. Children die in large proportions because their disease cannot be explained, and because the organs are not habituated to the functions of life. The mean of life varies in different countries from 40 to 45. A generation from father to son is about 30 years; of men in general 5-6ths die before 70, and 15-16ths before 80. After 80 it is rather endurance than enjoyment. The nerves are blunted, the senses fail, the muscles are rigid, the softer tubes become hard, the memory fails, the brain ossifies, the affections are buried, and hope ceases. The 16th die at 80; except a 133d, at 90. The remainder die from inability to live, at or before 100.

About the age of 36 the lean man usually becomes fatter and the fat man leaner. Again, between the years 43 and 50 his appetite fails, his complexion fades, and his tongue is apt to be furred on the least exertion of body or mind. At this period his muscles become flabby, his joints weak; his spirits droop, and his sleep is imperfect and unrefreshing. After suffering under these complaints a year, or perhaps two, he starts afresh with renewed vigor, and goes on till 61 or 62, when a similar change takes place, but with aggravated symp-

toms. When these grand periods have been successively passed, the gravity of incumbent years is more strongly marked, and he begins to boast of his age.

In Russia, much more than in any other country, instances of longevity are numerous, if true. In the report of the Holy Synod, in 1827, during the year 1825, and only among the Greek religion, 848 men had reached upwards of 100 years of age; 32 had passed their 120th year; 4 from 130 to 135. Out of 606,818 men who died in 1826, 2,765 were above 90; 1,432 above 95; and 848 above 100 years of age. Among this last number 88 were above 115; 24 more than 120; 7 above 125; and one 130. Riley asserts that Arabs in the Desert live 200 years.

On the average, men have their first-born at 30 and women at 28. The greatest number of deliveries take place between 25 and 35. The greatest number of deliveries take place in winter months, and in February, and the smallest in July, *i. e.*, to February, as 4 to 5 in towns and 3 to 4 in the country. The night births are to the day as 5 to 4.

Human Strength.—In Schulze's experiments on human strength, he found that men of five feet, weighing 126 lbs., could lift vertically 156 lbs. 8 inches; 217 lbs. 1.2 inches. Others, 6.1 feet, weighing 183 lbs., 156 lbs. 13 inches, and 217 lbs. 6 inches; others 6 feet 3 inches, weighing 158 lbs., 156 lbs. 16 inches, and 217 lbs. 9 inches. By a great variety of experiments he determined the mean human strength at 30 lbs., with a velocity of 2.5 feet per second; or it is equal to the raising half a hogshead 10 feet in a minute.

A good authority reckoned 1 horse equal to 5 men. Porters carry from 150 to 250 pounds. A man draws horizontally 70 to 80 lbs., and thrusts at the height of his chest 28 or 30 lbs. In hot climates men cannot perform half the continued labor. A man's mean labor is sufficient to raise 10 lbs. 10 feet in a second, for 10 hours per day, or 100 lbs. 1 foot in a second, or 36,000 feet in 10 hours; that is, 100 pounds per day would be 3,600,000 feet in a day, which he calls a dynamic unit. The force of a man in turning a winch is taken at 116 lbs.; or as much as would raise 256 lbs. 3,281 feet in a day; his force in pumping is as 190, or equal to 410 lbs. in 3,281 feet; in ringing, 259, or 572 lbs. in 3,281 feet; and in rowing 273, or 608 lbs. in 3,281 feet. In working a pump, a winch, a bell, and rowing, the effects are as 100, 167, 227 and 248. A man with an augur exerts a force of 100 lbs., with a screw-driver of 84 lbs., with a windlass 60 lbs., a hand-plane 50 lbs., a hand-saw 36 lbs.



Steamer "Savannah," the First that Crossed the Atlantic.

The Times (of London, England), in the issue of May 18, 1819, thus announced the expected event:

"GREAT EXPERIMENT.—A new steam-vessel of 300 tons has been built at New York for the express purpose of carrying passengers across the Atlantic. She is to come to Liverpool direct."

This steamer, named the Savannah, the first that crossed the Atlantic, was built at New York by Francis Ficket. Her engines were made by Stephen Vail, of Morristown. She was launched on the 22d of August, 1818. She could carry only seventy-five tons of coal and twenty-five cords of wood. Commanded by Captain Moses Rogers, of New London, Conn., the Savannah sailed from Savannah, Ga., on the 25th of May, 1819, bound for St. Petersburg via Liverpool. She reached the latter port on the 20th of June, having used steam eighteen days out of the twenty-six

FASTEST RECORDS OF OCEAN STEAMERS.

The following is the best record made by fast-sailing steamers between New York and European ports, up to the spring of 1892:

5 days, 16 hours, 31 minutes, by the Teutonic, of the White Star Line, going 2,778 miles, from Queenstown to New York, August 14-19, 1891.

5 days, 20 hours, 22 minutes, by the Majestic, going 2,866 miles, from Queenstown to New York, February 18-24, 1892, making $20\frac{1}{2}$ miles per hour, being the fastest speed on record.

6 days, 12 hours, 54 minutes, by the Feurst Bismarck, of the Hamburg Line, from New York to Southampton, June 18-25, 1891.

6 days, 16 hours, 34 minutes, by the La Touraine, of the French Line, from Havre to New York, June 20-27, 1891. Distance, 3,170 miles.

TRANSPORTATION OF THE MAILS—AVERAGE TIME.

The Post Office Department reports the average time occupied per trip by mail steamers of the Transatlantic service, during the fiscal year ended June 30, 1891, as follows:

NEW YORK TO LONDON.

| STEAMERS. | Number of Trips. | Average Time Occupied Per Trip. Hours. | STEAMERS. | Number of Trips. | Average Time Occupied Per Trip. Hours. |
|----------------------|------------------|--|------------------------|------------------|--|
| Feurst Bismarck..... | 2 | 169.4 | Ems | 11 | 206.3 |
| Columbia | 8 | 173.6 | Fulda | 9 | 206.5 |
| Nornannia..... | 8 | 177.5 | Eider | 12 | 206.8 |
| Augusta Victoria.... | 8 | 185.6 | Kaiser Wilhelm II... 3 | 3 | 215.0 |
| Teutonic..... | 11 | 178.1 | Elbe | 4 | 218.2 |
| Majestic..... | 12 | 180.0 | Etruria..... | 12 | 186.0 |
| Britannic..... | 8 | 214.0 | Umbria | 13 | 186.6 |
| Germanic..... | 9 | 217.9 | Servia | 12 | 213.4 |
| Celtic | 2 | 235.5 | Aurania..... | 9 | 214.2 |
| Adriatic. | 3 | 238.0 | Gallia | 2 | 229.0 |
| City of New York.... | 10 | 180.3 | Bothnia..... | 1 | 256.3 |
| City of Paris..... | 2 | 185.1 | City of Rome..... | 3 | 202.3 |
| City of Berlin..... | 1 | 231.0 | Alaska..... | 5 | 209.9 |
| City of Chicago..... | 3 | 259.8 | Arizona..... | 4 | 212.5 |
| City of Chester..... | 1 | 261.0 | Nevada..... | 3 | 260.2 |
| Havel.... | 5 | 183.7 | Wyoming..... | 1 | 268.7 |
| Spree..... | 8 | 185.2 | Wisconsin..... | 3 | 281.1 |
| Lahn..... | 13 | 189.4 | La Bretagne..... | 12 | 205.6 |
| Trave..... | 11 | 201.3 | La Champagne..... | 10 | 205.9 |
| Aller..... | 12 | 201.9 | La Gascogne..... | 9 | 207.6 |
| Saale..... | 10 | 203.9 | La Bourgogne..... | 12 | 209.4 |
| Werra | 12 | 206.2 | La Normandie..... | 8 | 224.2 |

The figures represent the time from the delivery of the mails to the steamer from the New York Post Office until the receipt of them at the foreign post office. The time of the French steamers is to Paris.

PRESIDENTS AND VICE-PRESIDENTS OF THE UNITED STATES.

| | PRESI- DENTS. | VICE- PRESI- DENTS. | | PRESI- DENTS. | VICE- PRESI- DENTS. |
|---------------------|------------------|---------------------------|-----------------------|------------------|---------------------------|
| Virginia | 5 | 2 | New Hampshire..... | 1 | 0 |
| New York..... | 4 | 8 | Illinois..... | 1 | 0 |
| Tennessee..... | 3 | 1 | District of Columbia. | 1 | 0 |
| Ohio | 3 | 0 | Kentucky..... | 0 | 2 |
| Massachusetts | 2 | 3 | South Carolina..... | 0 | 1 |
| Indiana. | 1 | 2 | Alabama | 0 | 1 |
| Pennsylvania..... | 1 | 1 | Maine..... | 0 | 1 |
| Louisiana | 1 | 0 | | | |
| | | | | 23 | 22 |

In this list Vice-Presidents who became Presidents through the death of the Presidents elected with them, are counted once as Vice-President and once as President. They are John Tyler [succeeded W. H. Harrison], Millard Fillmore [succeeded Zachary Taylor], Andrew Johnson [succeeded Abraham Lincoln], Chester A. Arthur [succeeded James A. Garfield].

Our two youngest Presidents, when inaugurated, were Grant [47 years old] and Cleveland [48]. The two oldest, W. H. Harrison (68) and Buchanan (66). The average age is about 55½ years.

HOW LIGHT COINS ARE DETECTED BY ELECTRICITY.

There is not a little spice of humor in the way in which both sharpers and those whose business it is to circumvent them have recourse to electrical methods for the attaining of their ends. A large consignment in gold eagles was sent to a New York bank from California which, on examination, was found to contain twenty lightweight coins bearing the date of 1891. These were apparently new and bright, but they were rejected on being passed into the electric light-coin detector. On being examined with a lens their surfaces were found to be covered with infinitesimal pores.

About \$1 worth of gold has been extracted from each eagle by electrolysis, which is a process now in high favor among professional coin "sweaters," of whom the American Chinaman has the reputation of being by far the most adroit and diligent. In the coin detector the coins are pushed in succession from the balance pan on to a knife edge, and according as this knife edge is at the right-hand limit of its range or the left-hand limit the coin, when pushed on it, tilts off to the "light" channel or the "full-weight" channel, as the case may be.

The right or left position of this shifting knife edge is determined by an electric contact made by the balance beam, and thus an electro-magnet is brought into action. The coins run through the machine at the rate of about sixty per minute by the turning of a handle.

HOW THE PRESIDENTS DIED.

GEORGE WASHINGTON—His death was the result of a severe cold, contracted while riding around his farm in a rain and sleet storm on December 10, 1799. The cold increased, and was followed by a chill, which brought on acute laryngitis. His death occurred on December 14, 1799. He was 68 years of age.

JOHN ADAMS—He died from old age, having reached his 91st milestone. Though active mentally, he was nearly blind and unable to hold a pen steadily enough to write. He passed away without a pain on July 4, 1826.

THOMAS JEFFERSON—He died at the age of 83, a few hours before Adams, on July 4, 1826. His disease was chronic diarrhea, superinduced by old age, and, his physician said, the too free use of the waters of the White Sulphur Springs.

JAMES MADISON—He, too, died of old age, and, peacefully, on June 28, 1836. His faculties were undimmed to the last. He was 85.

JAMES MONROE—At the time of his death, which occurred in the 73d year of his age, on July 4, 1831, assigned to enfeebled health.

JOHN QUINCY ADAMS—He was stricken with paralysis on February 21, 1848, while addressing the Speaker of the House of Representatives, being at the time a Member of Congress. He died in the rotunda of the Capitol. He was 81 years of age.

ANDREW JACKSON—He died on June 8, 1845, 78 years old. He suffered from consumption, and finally dropsy, which made its appearance about six months before his death.

MARTIN VAN BUREN—He died on July 24, 1862, from a violent attack of asthma, followed by catarrhal affections of the throat and lungs. He was 80 years of age.

WILLIAM HENRY HARRISON.—The cause of his death was pleurisy, the result of a cold which he caught on the day of his inauguration. This was accompanied with severe diarrhea, which would not yield to medical treatment. His death occurred on April 4, 1841, a month after his inauguration. He was 68 years of age.

JOHN TYLER—He died on January 17, 1862, at the age of 72. I have been unable to ascertain the cause of his death.

JAMES K. POLK—In the spring of 1849 he was stricken with a slight attack of cholera while on a boat going up the Mississippi River. Though temporarily relieved, he had a relapse on his return home and died on June 15, 1849, aged 54 years.

ZACHARY TAYLOR—He was the second President to die in office. He is said to have partaken immoderately of ice-water and iced milk, and then later of a large quantity of cherries. The result was an attack of cholera morbus. Another authority attributes his death to a severe cold. He was 66 years old.

MILLARD FILMORE—He died from a stroke of paralysis on March 8, 1874, in his 74th year.

FRANKLIN PIERCE—His death was due to abdominal dropsy, and occurred on October 8, 1869, in the 65th year of his life.

JAMES BUCHANAN—His death occurred on June 1, 1868, and was caused by rheumatic gout. He was 77 years of age.

ABRAHAM LINCOLN—He was shot by J. Wilkes Booth at Ford's Theater, Washington, D. C., on April 14, 1865, and died the following day, aged 56.

ANDREW JOHNSON—He died from a stroke of paralysis, July 31, 1875, aged 67.

The deaths of Grant, Garfield and Arthur are recent enough to be remembered by all.

Foreign Carrying Trade.

Values of the imports and exports of the United States carried in American vessels and foreign vessels during each fiscal year 1857 to 1890 inclusive, with the percentage carried in American vessels.

| YEAR ENDING JUNE 30. | IMPORTS. | | EXPORTS. | | PER CENT IN AM. VESSELS. |
|----------------------------|----------------------|------------------------|----------------------|------------------------|--------------------------------|
| | IN AMER. VESSELS. | IN FOREIGN VESSELS. | IN AMER. VESSELS. | IN FOREIGN VESSELS. | |
| 1857... | \$259,116,170 | \$101,773,971 | \$251,214,857 | \$111,745,825 | 70.50 |
| 1858... | 203,700,016 | 78,913,134 | 243,491,288 | 81,153,133 | 73.70 |
| 1859... | 216,123,428 | 122,644,702 | 249,617,953 | 107,171,509 | 66.90 |
| 1860... | 228,164,855 | 134,001,399 | 279,082,902 | 121,039,394 | 66.50 |
| 1861... | 201,544,055 | 134,106,098 | 179,972,733 | 69,372,180 | 65.20 |
| 1862... | 92,274,100 | 113,497,629 | 125,421,318 | 104,517,697 | 50.00 |
| 1863... | 109,744,580 | 143,175,340 | 132,127,891 | 199,880,691 | 41.40 |
| 1864... | 81,212,079 | 248,350,818 | 102,849,409 | 237,442,730 | 27.50 |
| 1865... | 74,385,116 | 174,170,536 | 93,017,756 | 262,839,588 | 27.50 |
| 1866... | 112,040,395 | 333,471,763 | 213,671,466 | 351,754,928 | 32.20 |
| 1867... | 117,209,536 | 300,622,035 | 180,625,368 | 280,708,368 | 33.90 |
| 1868... | 122,965,225 | 248,659,583 | 175,016,348 | 301,886,491 | 35.10 |
| 1869... | 136,802,024 | 300,512,231 | 153,154,748 | 285,971,781 | 33.10 |
| 1870... | 153,237,077 | 309,140,510 | 199,732,324 | 329,786,978 | 35.60 |
| 1871... | 163,285,710 | 363,020,644 | 190,378,462 | 932,801,932 | 31.20 |
| 1872... | 177,286,302 | 445,416,783 | 162,044,799 | 393,929,579 | 28.50 |
| 1873... | 174,739,834 | 471,806,765 | 171,566,758 | 494,915,886 | 25.80 |
| 1874... | 176,027,778 | 405,320,135 | 174,424,216 | 533,885,971 | 26.70 |
| 1875... | 157,872,726 | 382,949,568 | 156,385,066 | 501,838,949 | 25.80 |
| 1876... | 143,380,704 | 321,139,500 | 167,686,467 | 492,215,487 | 33.10 |
| 1877... | 151,834,067 | 329,565,833 | 164,826,214 | 530,354,703 | 26.50 |
| 1878... | 146,499,282 | 307,407,565 | 166,551,624 | 569,583,564 | 25.90 |
| 1879... | 143,599,353 | 310,499,599 | 128,425,339 | 600,769,633 | 22.60 |
| 1880... | 149,317,368 | 503,494,913 | 109,029,209 | 720,770,521 | 17.18 |
| 1881... | 133,631,146 | 491,840,269 | 116,955,324 | 777,162,714 | 16.22 |
| 1882... | 130,266,826 | 571,517,802 | 96,961,919 | 641,460,967 | 15.40 |
| 1883... | 136,002,290 | 564,175,576 | 104,418,210 | 694,331,348 | 15.54 |
| 1884... | 135,046,207 | 512,511,192 | 98,652,828 | 615,287,007 | 16.60 |
| 1885... | 112,864,052 | 443,513,801 | 82,001,691 | 636,004,765 | 14.76 |
| 1886... | 118,942,817 | 491,937,636 | 78,406,686 | 581,973,477 | 15.01 |
| 1887... | 121,365,493 | 548,392,216 | 72,991,253 | 621,802,292 | 13.80 |
| 1888... | 123,525,298 | 568,222,357 | 67,332,175 | 606,474,964 | 13.44 |
| 1889... | 120,782,910 | 586,120,881 | 83,022,198 | 630,942,660 | 13.70 |
| 1890... | 124,948,948 | 623,740,100 | 77,502,138 | 747,367,644 | 12.29 |

ARMIES AND NAVIES OF THE PRINCIPAL NATIONS.

Corrected to 1892.

AUSTRIA-HUNGARY.—Regular army, 1891, 324,438; war-footing, 2,032,420. Navy, 137 vessels, of which 12 are large iron-clads; officers and men, 8,998.

BELGIUM.—The army is composed of 98,808 officers and men of the regular army and 72,460 regular reserves; total on war-footing, 173,268.

BRAZIL.—Regular army, 15,689; war-footing, 29,617. Navy, 10 iron-clads, 45 other vessels, and 9 for port service; men and officers, 5,790.

CHILI.—Regular army, 5,835; war-footing, 57,000. Navy, 49 vessels, including 3 iron-clads.

CHINA.—Regular army, about 656,459; war-footing, 1,260,000. Navy, 97 vessels.

DENMARK.—Regular army, 37,148 in peace; 52,700 in war; reserves, 38,000. Navy, 92 steamers, of which 12 are armor-clad.

EGYPT.—Regular army, 16,000. Navy, 14 vessels.

FRANCE.—By a law which went into force June 1, 1873, and supplemented in 1890, every Frenchman capable of bearing arms is made liable to thirty years' military service, viz.: Four in the standing army, five in the reserve of the standing army, five in the territorial army, and eleven in the reserve of the territorial army. This gives France a force of about 528,114 in time of peace, and 4,169,472 on a war-footing. Navy, 1891, 520 vessels, of which 61 are first-rate iron-clads; sailors and marines, about 75,915; reserve, 150,000.

GERMANY.—Regular army, 499,852; war-footing, 3,000--000. Navy, 282 vessels, including 19 large iron-clads; men, about, 11,908; reserve, 34,000.

GREAT BRITAIN.—In the British army the term of service is twelve years, after which a soldier can serve for nine years more. The strength of the regular army is 204,417. With Colonial and reserve troops the grand total reaches 1,179,350. Navy, 84 iron-clads, about 880 steamers and sailing vessels. These vessels are manned by 58,165; reserve, 55,000.

ITALY.—According to official statement the Italian permanent army consists of 251,664 on a peace-footing. On a war-footing, the army reaches a grand total of 2,522,314 men and officers. Navy, 240 ships, 20 of which are large iron-clads. Total of all ranks of navy, 17,226; reserve, 15,000.

JAPAN.—Regular army, 78,957; war-footing, 243,323. Navy, 36 steam vessels, including 3 iron-clads; men, 9,886.

MEXICO.—Regular army, 27,244. Navy, 7 gunboats.

NETHERLANDS.—Regular army in Europe, 63,816; reserve, 63,106. Navy, 203 vessels.

NORWAY.—Regular army, 18,000. Navy, 46 vessels, 17,200 men.

PERSIA.—Army, peace-footing, usually about 80,500; war footing, 150,000.

PERU.—Regular army, 5,000. Navy, 3 vessels.

PORTUGAL.—Regular army, 33,294; war-footing, about 125,000. Navy, 39 steamers and 16 sailing vessels.

ROUMANIA.—Regular army, 29,000; reserve, 29,000.

RUSSIA.—The nominal strength of the army is 35,780; war-footing, 7,914,250. Navy, 387 vessels, of which 44 are armor-clad; men, about 37,000.

SPAIN.—Army, peace, 152,882; war-footing, 474,562. Navy, 194 vessels, including 15 iron-clads.

SWEDEN.—Regular army, 39,671. Navy, 70 steamers and 4,415 men.

SWITZERLAND.—Effective strength of army—Elite class, 125,570; Landwehr class, 80,715; Landsturm class, 262,766.

TURKEY.—Army on peace-footing, about 168,810; war-footing, estimated, 900,000. Navy, 14 large iron-clads and 80 other vessels, manned by 36,000 men and officers.

UNITED STATES.—Actual enlisted strength of army, June 30, 1891, 2,170 officers and 25,220 men. Organized militia, 100,000. The number of citizens eligible in case of war is over 6,000,000. Navy, 59 vessels of the old navy, and 57 (built or being built) of the new navy, with 10 navy yards; 9,500 enlisted men

Foreigners in Various Countries.

Next to the United States, which contain over 8,000,000 foreign-born residents, come France with 875,000, then Germany with 275,000, Brazil with 250,000, the Argentine Republic with 220,000, Switzerland with 215,000, Great Britain and Ireland with 150,000, Russia with 95,000, and Belgium with 98,000.

The Greatest Ocean Depths yet measured are one of 4,855 fathoms, off the northeast coast of Japan; one of 4,475 fathoms south of the Ladrone Islands; one of 4,561 fathoms north of Porto-Rico, and two of 4,295 and 4,430 fathoms, respectively, to the south of the Friendly Islands. (A fathom = 6 feet in length.)

Men Called by President Lincoln During the Late War.

The total number called for, under all calls made by the President, from April 15, 1861, to April 14, 1865, was 2,759,049.

Their terms of service under the calls were from three months to three years.

United States Soldiers in the Late Civil War.

| | Aggregate. |
|----------------------------|------------|
| New York | 455,568 |
| Pennsylvania | 366,326 |
| Ohio | 317,133 |
| Illinois | 258,217 |
| Indiana | 195,147 |
| Massachusetts | 151,785 |
| Missouri | 107,773 |
| Wisconsin | 96,118 |
| Michigan | 90,119 |
| New Jersey | 79,511 |
| Kentucky | 78,540 |
| Iowa | 75,860 |
| Maine | 71,745 |
| Connecticut | 52,270 |
| Maryland | 49,730 |
| Vermont | 35,256 |
| New Hampshire | 34,605 |
| West Virginia | 30,003 |
| Minnesota | 25,034 |
| Rhode Island | 23,711 |
| Kansas | 20,097 |
| District of Columbia | 16,872 |
| Delaware | 13,651 |

Total 2,653,062

THE TOTAL AMOUNT OF OUR FORTUNE.
According to the United States Census of 1890.

The value of real and personal property as actually assessed by the officials of the several states and territories has always formed the basis of the decennial estimates of the wealth of the United States. For the three decades ending in 1880 the estimated true value of all property and the value of real estate and personal property as assessed, including the assessed valuation as returned in 1890, was as follows:

| YEARS. | ASSESSED VALUATION. | ESTIMATED TRUE VALUATION. |
|-----------|---------------------|---------------------------|
| 1860..... | \$12,084,560,005 | \$16,159,616,068 |
| 1870..... | 14,178,986,732 | 30,068,518,507 |
| 1880..... | 16,902,993,543 | 43,642,000,000 |
| 1890..... | 24,249,589,804 | 62,610,000,000 |

This is nearly \$1,000 *per head*, as against \$514 *per head* in 1860, \$780 *per head* in 1870, and \$870 *per head* in 1880.

Flax and Hemp in the United States.

The total area of land devoted to the cultivation of *flax* in 1889 is found, in the 1890 census, to have been 1,318,698 acres, the production of flaxseed 10,250,410 bushels, the production of fibre 241,389 pounds, the amount of flax straw sold or so utilized as to have a determinable value \$207,757 tons, and the total value of all flax products, \$10,436,228. While flaxseed is reported from 31 states, Minnesota, Iowa, South Dakota and Nebraska produce 80.06 per cent of the total amount, or 1,035,613 bushels in excess of the entire production of the United States at the census of 1880. Throughout the greater portion of the principal flaxseed-producing region flax straw is of little or no value, and much of the so-called fibre is only an inferior quality of tow, used chiefly for upholstering purposes. There are indications, however, of the revival in the United States of a linen industry that will afford a market for fine flax fibre of domestic production, and revive a branch of agriculture that has for many years been almost extinct. For the present, linseed oil is the only important product obtained from flax in the United States.

The total area of land devoted to the cultivation of *hemp*, in 1889, was 25,054 acres, and the production of fibre 11,511 tons, valued at \$1,102,602 to the producers. This branch of agricultural industry is confined almost exclusively to the State of Kentucky, which produced 93.77 per cent of the total hemp crop of the country.

The Nation's Dead.

A recent report shows that the nation's dead are buried in seventy-nine national cemeteries, of which twelve are in the Northern States. Among the principal ones in the North are Cyprus Hill, Brooklyn, N. Y., with its 3,786 dead; Finn's Point, N. J., which contains the remains of 2,644 unknown dead; Gettysburg, Pa., with its 1,967 known and 1,608 unknown dead; Mound City, Ill., with 2,505 known and 2,721 unknown graves; Philadelphia, with 1,909 dead, and Woodlawn, Elmira, N. Y., with its 3,090 dead. In the South, near the scenes of terrible conflicts, are located the largest depositories of the nation's heroic dead:

Arlington, Va., 16,264, of whom 4,349 are unknown.

Beaufort, S. C., 9,241, of whom 4,493 are unknown.

Chalmette, La., 12,511, of whom 5,674 are unknown.

Chattanooga, Tenn., 12,962, of whom 4,963 are unknown.

Fredericksburg, Va., 15,257, of whom 12,770 are unknown.

Jefferson Barracks, Mo., 11,490, of whom 2,906 are unknown.

Little Rock, Ark., 5,602, of whom 2,337 are unknown.

City Point, Va., 5,122, of whom 1,374 are unknown.

Marietta, Ga., 10,151, of whom 2,963 are unknown.

Memphis, Tenn., 13,997, of whom 8,817 are unknown.

Nashville, Tenn., 16,526, of whom 4,701 are unknown.

Poplar Grove, Va., 6,199, of whom 4,001 are unknown.

Richmond, Va., 6,542, of whom 5,700 are unknown.

Salisbury, N. C., 12,126, of whom 12,032 are unknown.

Stone River, Tenn., 5,602, of whom 288 are unknown.

Vicksburg, Miss., 16,600, of whom 12,704 are unknown.

Antietam, Va., 4,671, of whom 1,818 are unknown.

Winchester, Va., 4,559, of whom 2,365 are unknown.

In all, the remains of 300,000 men who fought for the Stars and Stripes find guarded graves in our national cemeteries. Two cemeteries are mainly devoted to the brave men who perished in the loathsome prisons of the same name—Andersonville, Ga., which contains 13,714 graves, and Salisbury, with its 12,126 dead, of whom 12,032 are unknown.

United States Pension Statistics.

Number of Pension Claims, Pensioners and Disbursements, 1861-90.

| Fiscal year ending June 30. | Army and Navy. Claims allowed. | | Total number of applications filed. | Total number of claims allowed. |
|-----------------------------|-----------------------------------|-----------------|-------------------------------------|---------------------------------|
| | Inval- ids. | Widows, etc. | | |
| 1861..... | ..... | ..... | ..... | ..... |
| 1862..... | 413 | 49 | 2,487 | 462 |
| 1863..... | 4,121 | 3,763 | 49,332 | 7,884 |
| 1864..... | 17,041 | 22,446 | 53,599 | 39,487 |
| 1865..... | 15,212 | 24,959 | 72,684 | 40,171 |
| 1866..... | 22,883 | 27,294 | 65,256 | 50,177 |
| 1867..... | 16,589 | 19,893 | 36,753 | 36,482 |
| 1868..... | 9,460 | 19,461 | 20,768 | 28,921 |
| 1869..... | 7,292 | 15,904 | 26,066 | 23,196 |
| 1870..... | 5,721 | 12,500 | 24,851 | 18,221 |
| 1871..... | 7,934 | 8,399 | 43,969 | 16,562 |
| 1872..... | 6,468 | 7,244 | 26,391 | 34,333 |
| 1873..... | 6,551 | 4,073 | 18,303 | 16,052 |
| 1874..... | 5,937 | 3,152 | 16,734 | 10,462 |
| 1875..... | 5,760 | 4,736 | 18,704 | 11,152 |
| 1876..... | 5,360 | 4,376 | 23,523 | 9,977 |
| 1877..... | 7,282 | 3,861 | 22,715 | 11,326 |
| 1878..... | 7,414 | 3,550 | 44,587 | 11,962 |
| 1879..... | 7,242 | 3,379 | 57,118 | 31,346 |
| 1880..... | 10,176 | 4,455 | 141,466 | 19,545 |
| 1881..... | 21,394 | 3,920 | 31,116 | 27,394 |
| 1882..... | 22,946 | 3,999 | 40,939 | 27,664 |
| 1883..... | 32,014 | 5,303 | 48,776 | 38,162 |
| 1884..... | 27,414 | 6,366 | 41,785 | 34,192 |
| 1885..... | 27,580 | 7,743 | 40,918 | 35,767 |
| 1886..... | 31,937 | 8,610 | 49,895 | 40,857 |
| 1887..... | 35,283 | 11,217 | 72,465 | 55,194 |
| 1888..... | 44,893 | 15,359 | 73,726 | 60,252 |
| 1889..... | 36,830 | 11,924 | 81,220 | 51,912 |
| 1890..... | 50,395 | 14,612 | 105,044 | 66,637 |
| Total..... | 490,402 | 278,004 | 1,353,190 | 855,758 |

United States Pension Statistics—Continued.

| Fiscal y'r ending June 30. | Number of pensioners on the roll and the amount paid for pensions, with cost of disbursements. | | | |
|----------------------------------|---|-----------------|---------|--------------------|
| | Inva- lids. | Widows, etc. | Total. | Disbursements. |
| 1861..... | 4,337 | 4,299 | 8,636 | \$ 1,072,462.00 |
| 1862..... | 4,341 | 3,818 | 8,159 | 790,385.00 |
| 1863..... | 7,821 | 6,970 | 14,791 | 1,025,140.00 |
| 1864..... | 23,479 | 27,656 | 51,135 | 4,564,617.00 |
| 1865..... | 35,880 | 50,106 | 85,986 | 8,525,153.00 |
| 1866..... | 55,652 | 71,070 | 126,722 | 13,459,996.00 |
| 1867..... | 69,565 | 83,678 | 153,183 | 18,619,956.00 |
| 1868..... | 75,957 | 93,686 | 169,643 | 24,010,832.00 |
| 1869..... | 82,859 | 105,104 | 187,963 | 28,422,134.00 |
| 1870..... | 87,521 | 111,165 | 198,686 | 27,780,812.00 |
| 1871..... | 93,394 | 114,101 | 207,495 | 33,077,384.00 |
| 1872..... | 113,954 | 118,275 | 232,229 | 30,169,341.00 |
| 1873..... | 119,500 | 118,911 | 238,411 | 29,185,290.00 |
| 1874..... | 121,628 | 114,613 | 236,241 | 30,593,750.00 |
| 1875..... | 122,989 | 111,832 | 234,821 | 29,683,117.00 |
| 1876..... | 124,239 | 107,898 | 232,137 | 28,351,600.00 |
| 1877..... | 128,723 | 103,381 | 222,104 | 28,580,157.00 |
| 1878..... | 131,649 | 92,349 | 223,998 | 26,844,415.00 |
| 1879..... | 138,615 | 104,140 | 242,755 | 33,780,526.00 |
| 1880..... | 145,410 | 105,392 | 250,802 | 57,240,540.00 |
| 1881..... | 164,110 | 104,720 | 268,830 | 50,626,539.00 |
| 1882..... | 182,633 | 103,064 | 285,697 | 54,296,281.00 |
| 1883..... | 206,042 | 97,616 | 303,658 | 60,431,973.00 |
| 1884..... | 225,470 | 97,286 | 322,756 | 57,273,537.00 |
| 1885..... | 247,146 | 97,979 | 345,125 | 65,693,707.00 |
| 1886..... | 270,346 | 95,437 | 365,783 | 64,584,270.00 |
| 1887..... | 306,298 | 99,709 | 406,007 | 74,815,486.85 |
| 1888..... | 343,701 | 108,857 | 452,557 | 79,646,146.37 |
| 1889..... | 351,284 | 173,241 | 489,725 | 88,275,113.28 |
| 1890..... | 415,654 | 122,290 | 537,944 | 106,493,890.19 |
| Total..... | | | | \$1,158,712,303.36 |

Wars of the United States.

STATEMENT OF THE NUMBER OF UNITED STATES TROOPS ENGAGED.

| WARS. | DATE. | | TROOPS ENGAGED. | | |
|---|----------------|----------------|-----------------|-------------------------|---------|
| | From— | To— | Regulars. | Militia and Volunteers. | Total |
| War of the Revolution..... | April 19, 1775 | April 11, 1783 | 130,711 | 58,750 | ..... |
| Estimated additional... .. | ..... | ..... | ..... | 105,330 | 309,791 |
| Northwestern Indian wars... | Sept. 19, 1790 | Aug. 3, 1795 | ..... | ..... | 8,983 |
| War with France..... | July 9, 1798 | Sept. 30, 1800 | ..... | ..... | *4,593 |
| War with Tripoli..... | June 10, 1801 | June 4, 1805 | ..... | ..... | *3,339 |
| Northwestern Indian war; General Harrison..... | Sept. 11, 1811 | Nov. 11, 1811 | 250 | 660 | 910 |
| Creek Indian war..... | July 27, 1813 | Aug. 9, 1814 | 600 | 13,181 | 13,781 |
| War of 1812 with Great Britain | June 18, 1812 | Feb. 17, 1815 | 85,000 | 471,622 | 576,622 |
| Seminole Indian war..... | Nov. 20, 1817 | Oct. 21, 1818 | 1,000 | 6,911 | 7,911 |
| Black Hawk Indian war..... | April 21, 1831 | Sept. 31, 1832 | 1,339 | 5,126 | 6,465 |
| Cherokee disturbance or removal | 1836 | 1837 | ..... | 9,494 | 9,494 |

WARS OF THE UNITED STATES--CONTINUED.

| WARS. | DATE. | | TROOPS ENGAGED. | | |
|---------------------------------------|----------------|----------------|-----------------|-------------------------|-----------|
| | From— | To— | Regulars. | Militia and Volunteers. | Total. |
| Creek Indian war or disturbance | May 5, 1836 | Sept. 30, 1837 | 935 | 12,453 | 13,483 |
| Florida Indian war | Dec. 23, 1835 | Aug. 14, 1843 | 11,169 | 29,953 | 41,000 |
| Aroostook disturbance | 1838 | 1839 | ..... | 1,500 | 1,500 |
| War with Mexico | April 24, 1846 | July 4, 1848 | 30,954 | 73,776 | 112,230 |
| Apache, Navajo, and Utah war | 1849 | 1855 | 1,500 | 1,061 | 2,561 |
| Comanche Indian war | 1854 | 1854 | ..... | 503 | 503 |
| Seminole Indian war | 1856 | 1858 | ..... | 2,687 | 2,687 |
| Civil war | 1861 | 1865 | ..... | ..... | 2,859,132 |

*Naval forces engaged. The number of troops on the Confederate side during the Civil War was about 600,000.

The number of casualties in the volunteer and regular armies of the United States, during the war of 1861-65, was reported by the Provost-Marshal General in 1866:

★ WARS OF THE UNITED STATES—CON- TINUED.

Killed in battle, 61,362; died of wounds, 34,727; died of disease, 183,287; total died, 279,376; total deserted, 199,105.

Number of soldiers in the Confederate service, who died of wounds or disease (partial statement), 133,821. Deserted (partial statement), 104,428.

Number of United States troops captured during the war, 212,608; Confederate troops captured, 476,169.

Number of United States troops paroled on the field, 16,431; Confederate troops paroled on the field, 248,599.

Number of United States troops who died while prisoners, 29,725; Confederate troops who died while prisoners, 26,774.

The casualties on the American side in the last war with Great Britain, 1812-15, were: Killed, 1,877; wounded, 3,737; total, 5,614.

The casualties on the American side in the war with Mexico, 1846-48, were: Killed, 1,049; died of wounds, 904; wounded, 3,420.

The estimated cost to the United States of the Revolutionary War was \$135,193,703; of the war of 1812 with Great Britain, \$107,159,003; of the Mexican War, \$100,000,000; of the Civil War (including all expenses growing out of the war), \$6,189,929,909.

The height of the railway bridge at Niagara river, above the river, is 250 feet.

Aggregate Debt of Nation, States and Counties, 1880 and 1890.

| | 1880. | 1890. | PER HEAD. | |
|-------------------------------------|-----------------|-----------------|-----------|---------|
| | | | 1880. | 1890. |
| The United States. | \$1,922,517,364 | \$ 915,962,112 | \$38.33 | \$14.63 |
| The Several States and Territories. | 290,326,643 | 223,107,883 | 5.69 | 3.56 |
| The Several Counties..... | 124,105,027 | 141,950,845 | 2.47 | 2.27 |
| Total..... | \$2,336,949,034 | \$1,281,020,840 | \$46.59 | \$20.46 |

THE DEBT OF THE WORLD, JUNE 1, 1890

(Less Sinking Fund and Local Foreign Debt Not Compiled by Census Bureau).

| CHARACTER OF DEBT. | DEBT LESS SINKING FUND. | | INCREASE. | DECREASE. | PER HEAD. | |
|--|-------------------------|------------------|----------------|-----------------|-----------|---------|
| | 1890. | 1880. | | | 1890. | 1880. |
| Total..... | \$28,648,392,681 | \$28,530,288,890 | \$ 118,103,791 | ..... | \$32.85 | \$37.27 |
| National Debt of Foreign Countries.. | 26,621,222,135 | 25,484,492,879 | 1,136,729,256 | ..... | 32.88 | 35.62 |
| National Debt of United States..... | 891,960,104 | 1,922,517,364 | ..... | \$1,030,557,260 | 14.24 | 38.33 |
| State and Local Debt of United States..... | 1,135,210,442 | 1,123,278,647 | 11,931,795 | ..... | 18.14 | 22.39 |

DETAIL OF STATE AND LOCAL DEBT OF THE UNITED STATES.

| | | | | | | |
|----------------------|---------------|---------------|--------------|--------------|---------|---------|
| State..... | \$228,997,389 | \$297,244,095 | ..... | \$68,246,706 | \$ 3.66 | \$ 5.93 |
| County | 145,048,045 | 124,105,027 | \$20,943,018 | ..... | 2.32 | 2.47 |
| Municipal..... | 724,463,060 | 684,348,843 | 40,114,217 | ..... | 11.57 | 13.64 |
| School District..... | 36,701,948 | 17,580,682 | 19,121,266 | ..... | 0.59 | 0.35 |
| | | | Per Head.. | .. | \$18.14 | \$22.39 |

STEEL AND BRASS PLATES.

Weight of steel and brass plates per sq. foot by American gauge.

| No. of gauge. | Steel, pounds. | Brass, pounds. | No. of gauge. | Steel, pounds. | Brass, pounds. |
|---------------|----------------|----------------|---------------|----------------|----------------|
| 1 | 10.993 | 12.382 | 18 | 1.531 | 1.725 |
| 2 | 9.789 | 11.027 | 19 | 1.363 | 1.536 |
| 3 | 8.718 | 9.819 | 20 | 1.214 | 1.367 |
| 4 | 7.763 | 8.744 | 21 | 1.081 | 1.218 |
| 5 | 6.913 | 7.787 | 22 | .9631 | 1.084 |
| 6 | 6.156 | 6.934 | 23 | .857 | .966 |
| 7 | 5.482 | 6.175 | 24 | .763 | .860 |
| 8 | 4.882 | 5.499 | 25 | .680 | .766 |
| 9 | 4.348 | 4.897 | 26 | .605 | .682 |
| 10 | 3.871 | 4.360 | 27 | .539 | .607 |
| 11 | 3.448 | 3.883 | 28 | .480 | .541 |
| 12 | 3.070 | 3.458 | 29 | .427 | .481 |
| 13 | 2.734 | 3.079 | 30 | .380 | .429 |
| 14 | 2.435 | 2.742 | 31 | .339 | .382 |
| 15 | 2.168 | 2.442 | 32 | .302 | .340 |
| 16 | 1.931 | 2.175 | 33 | .269 | .303 |
| 17 | 1.719 | 1.937 | 34 | .239 | .269 |

RAILWAY SIGNALS.

One whistle signifies "down brakes."

Two whistles signify "off brakes."

Three whistles signify "back up."

Continued whistles signify "danger."

Rapid short whistles "a cattle alarm."

A sweeping parting of the hands on a level with the eyes, signifies "go ahead."

Downward motion of the hands with extended arms, signifies "stop."

Beckoning motion of one hand, signifies "back."

Red flag waved up the track, signifies "danger."

Red flag stuck up by the roadside, signifies "danger ahead."

Red flag carried on a locomotive, signifies "an engine following."

Red flag hoisted at a station is a signal to "stop."

Lanterns at night raised and lowered vertically, is a signal "to start."

Lanterns swung at right angles across the track, means "stop."

Lanterns swung in a circle, signifies "back the train."

COST OF SMALL QUANTITIES OF HAY.

| PRICE PER TON. | 25 lbs. worth. | 40 lbs. worth. | 100 lbs. worth. | 200 lbs. worth. | 300 lbs. worth. |
|-------------------|-------------------|-------------------|--------------------|--------------------|--------------------|
| \$ 4 00.. | 5 cts. | 10 cts. | 20 cts. | \$ 40 | \$ 60 |
| 5 00.. | 6 " | 12 " | 25 " | 50 | 75 |
| 6 00.. | 7 1/2 " | 15 " | 30 " | 60 | 90 |
| 7 00.. | 8 1/2 " | 17 " | 35 " | 70 | 1 05 |
| 8 00.. | 10 " | 20 " | 40 " | 80 | 1 20 |
| 9 00.. | 11 " | 22 " | 45 " | 90 | 1 35 |
| 10 00.. | 12 1/2 " | 25 " | 50 " | 1 00 | 1 50 |
| 11 00.. | 13 1/2 " | 27 " | 55 " | 1 19 | 1 65 |
| 12 00.. | 15 " | 30 " | 60 " | 1 20 | 1 80 |
| 13 00.. | 16 " | 32 " | 65 " | 1 30 | 1 95 |
| 14 00.. | 17 1/2 " | 35 " | 70 " | 1 40 | 2 10 |
| 15 00.. | 18 1/2 " | 37 " | 75 " | 1 50 | 2 25 |

AMOUNT OF OIL IN SEEDS.

| Kind of Seed. | Per cent. Oil. | Kind of Seed. | Per cent. Oil. |
|--------------------|----------------|--------------------|----------------|
| Bitter Almond..... | 55 | Oats..... | 6 1/2 |
| Barley | 2 1/2 | Rapeseed..... | 55 |
| Clover hay..... | 5 | Sweet Almond..... | 47 |
| Hemp seed..... | 19 | Turnip seed..... | 45 |
| Indian corn..... | 7 | White mustard..... | 37 |
| Linseed | 17 | Wheat bran..... | 4 |
| Meadow hay..... | 3 1/2 | Wheat-straw | 3 |
| Oat-straw | 4 | Wheat flour..... | 3 |

RELATIVE VALUE OF DIFFERENT FOODS
FOR STOCK.

One hundred pounds of good hay for stock are equal to:

| Articles. | Pounds. | Articles. | Pounds. |
|-----------------------|---------|-----------------------|---------|
| Beans..... | 28 | Oats..... | 59 |
| Beets | 669 | Oil-cake, linseed.... | 43 |
| Clover, red, green... | 373 | Peas, dry..... | 37 1/2 |
| Carrots | 371 | Potatoes | 350 |
| Corn..... | 62 | Rye-straw | 429 |
| Clover, red, dry.... | 88 | Rye | 53 1/2 |
| Lucerne..... | 89 | Turnips..... | 469 |
| Mangolds | 368 1/2 | Wheat | 44 1/2 |
| Oat-straw , | 317 | | |

Quantity of Seed Required to Plant an Acre.

| | |
|------------|---|
| 16 quarts | Asparagus in 12 inch drills. |
| 20 " | Beans, pole, Lima, 4 by 4 feet. |
| 10 " | Beans, Carolina, prolific, etc., 4 by 3 feet. |
| 10 " | Corn, sugar. |
| 8 " | Corn, field. |
| 3 " | Cucumber, in hills. |
| 20 " | Flax, broadcast. |
| 6 " | Grass, timothy with clover. |
| 10 " | Grass, timothy without clover. |
| 25 " | Grass, orchard. |
| 20 " | Grass, red top or heads. |
| 28 " | Grass, blue. |
| 20 " | Grass, rye. |
| 2 " | Pumpkin, in hills 8 by 8 feet. |
| 8,000 | Asparagus plants, 4 by 1½ feet. |
| 25,000 | Celery plants, 4 by ½ feet. |
| 17,500 | Pepper plants, 2½ by 1 foot. |
| 3,800 | Tomato plants. |
| 2½ bushels | Barley. |
| 1½ " | Beans, bush, in drills 2½ feet. |
| 2 " | Peas, in drills, short varieties. |
| 1 to 1½ " | Peas, in drills, tall varieties. |
| 3 " | Peas, broadcast. |
| 8 " | Potatoes. |
| 1¾ " | Rye, broadcast. |
| 1½ " | Rye, drilled. |
| 1¼ " | Wheat, in drills. |
| 2 " | Wheat, broadcast. |
| 12 ounces | Cabbage, outside, for transplanting. |
| 4 " | Cabbage, sown in frames. |
| 8 " | Celery, seed. |
| 3 " | Tomatoes, in frames. |
| 8 " | Tomatoes, seed in hills 3 by 3 feet. |
| 9 pounds | Beets and mangold, drills, 2½ feet. |
| 12 " | Broom corn in drills. |
| 4 " | Carrot, in drills, 2½ feet. |
| 13 " | Clover, white Dutch. |
| 10 " | Clover, Lucerne. |
| 6 " | Clover, Alsike. |
| 12 " | Clover, large red with timothy. |
| 16 " | Clover, large red without timothy. |

| | | |
|----|---|--|
| 25 | " | Corn, salad, drill 10 inches. |
| 3 | " | Lettuce, in rows 2½ feet. |
| 35 | " | Lawn grass. |
| 3 | " | Melons, water, in hills 8 by 8 feet. |
| 2 | " | Melons, citrons, in hills 4 by 4 feet. |
| 50 | " | Onions, in beds for sets. |
| 7 | " | Onions, in rows for large bulbs. |
| 5 | " | Parsnip, in drills 2½ feet. |
| 4 | " | Parsley, in drills 2 feet. |
| 10 | " | Radish, in drills 2 feet. |
| 3 | " | Squash, bush, in hills 4 by 4 feet. |
| 3 | " | Turnips, in drills 2 feet. |
| 3 | " | Turnips, broadcast. |

The Longest Rivers in the World.

Miles.

| | |
|-------|---------------------------|
| 233 | —Thames. |
| 300 | —Kenebec. |
| 350 | —Hudson. |
| 400 | —Delaware. |
| 450 | —Connecticut. |
| 500 | —James. |
| 500 | —Potomac. |
| 500 | —Susquehanna. |
| 600 | —Alabama. |
| 600 | —Cumberland. |
| 700 | —Red River of the North. |
| 800 | —Tennessee. |
| 900 | —Kansas. |
| 950 | —Rhine. |
| 950 | —Ohio. |
| 1,000 | —Yellowstone. |
| 1,100 | —Colorado, in California. |
| 1,200 | —Red River. |
| 1,200 | —Nebraska. |
| 1,200 | —Columbia. |
| 1,300 | —San Francisco. |
| 1,600 | —Danube. |
| 1,800 | —Rio Grande. |
| 2,000 | —Volga. |
| 2,000 | —Arkansas. |

- 2,000—Madeira.
- 2,200—St. Lawrence.
- 2,500—Obe.
- 2,600—Niger, or Jobila.
- 2,600—Lena.
- 2,800—Mississippi, proper.
- 4,100—Missouri, to the sea, forming longest in world.
- 2,900—Missouri, to its junction with Mississippi.
- 3,600—Amazon.
- 3,000—Nile.

A NEW AND PROFITABLE INDUSTRY.

TROPIC AND SEMI-TROPIC FRUIT GROWING.

In addition to the tropic and semi-tropic fruits and nuts grown for home and family use through the United States, there were, in the census year 1890, 13,515 acres of almond, 677.50 of banana, 169.88 of citron, 9,864 of cocoanut, 4,477 of fig, 550 of guava, 1,362.25 of kaki, 7,256 of lemon, 495.58 of lime, 12,180 of madeira nut, 7,097 of olive, 184,003 of orange, 2,189.50 of pineapple, 171.89 of pomelo, and 27,419.50 of pecan trees, representing 658,566 bearing and 800,010 nonbearing almond trees, 577,782 bearing banana plants, 4,237 bearing and 14,110 nonbearing citron trees, 123,227 bearing and 1,199,549 nonbearing cocoanut trees, 138,186 bearing and 285,201 nonbearing fig trees, 32,943 bearing and 120,529 nonbearing guava trees, 58,390 bearing and 124,522 nonbearing kaki trees, 167,663 bearing and 498,784 nonbearing lemon trees, 19,096 bearing and 44,255 nonbearing lime trees, 188,409 bearing and 411,248 nonbearing madeira nut trees, 278,380 bearing and 331,022 nonbearing olive trees, 3,885,890 bearing and 9,705,246 nonbearing orange trees, 21,750,000 pineapple plants, 3,279 bearing and 12,867 nonbearing pomelo trees, and 214,988 bearing and 657,980 nonbearing pecan trees.

Excluding pineapples and bananas, which are all counted as bearing plants, as they commence fruiting within a year of planting, it will be noted that the average number of all nonbearing trees is about double that of the bearing trees, the product of which in the census year, was as far as reported, valued at \$14,116,226.59, divided as follows: almond, \$1,525,109.80; banana, \$280,653.75; cocoanut, \$251,217.41; fig, \$307,271.76; lemon, \$988,099.92; lime, \$62,496.90; madeira nut, \$1,256,958; olive, \$386,368.32; orange, \$6,602,099.06; pineapple, \$812,159.17; pomelo, \$27,216, and pecan, \$1,616,576.50. On the basis of present prices, with all the nonbearing trees in fruitage, the next census (1900) ought to show a value of product of *more than \$50,000,000*. As a forecast of the future growth of these branches of horticulture, the above figures are most interesting.

ARTESIAN WELLS

So called from the French province of Artois, whence they are supposed to originate. It is the name given to a peculiar kind of bored well, in which the water rises to the surface and overflows. In the United States any deep-bored well is called *artesian*, even if the water has to be pumped from a considerable depth. The geological conditions permitting an overflow without pumping are not general—since it is necessary that the region should have a more or less complete basin-structure, and that there should be a series of permeable, covered by impermeable, beds. Artesian wells vary in depth from less than 100 feet to nearly 4,000 feet, the deepest borings being for petroleum. The total number of artesian wells on farms, in June 1890, in the states and territories forming the western half of the United States, was 8,097, representing an estimated aggregate investment of \$1,988,461.26. Complete statistics, concerning the depth, cost, discharge, and other features of 2,971 of such wells, fairly distributed through the various states and counties from which they are reported, have been obtained from the owners, and from the averages derived from such statistics, the number of artesian wells used for the purposes of irrigation is computed at 3,930; the average depth per well, 210.41 feet; the average cost per well, \$245.58; the total discharge of water per minute, 440,719.71 gallons, or 54.43 gallons per well per minute; the average area irrigated per well, 13.21 acres, and the average cost of water per acre irrigated, \$18.55. Over one-half of these wells are in the State of California, where 38,378 acres of agricultural land were irrigated by artesian water. Utah stands second in the number of artesian wells used for irrigation purposes and Colorado in the area of land thus irrigated.

CURIOSITIES OF THE BIBLE.

The Bible contains 3,566,480 letters, 773,746 words, 31,173 verses, 1,189 chapters and 66 books. The word AND occurs 46,277 times. The word LORD occurs 1,855 times. The word REVEREND occurs but once, which is in the 9th verse of the 111th Psalm. The middle verse is the 8th verse of the 118th Psalm. The 21st verse of the 7th chapter of Ezra contains all the letters of the alphabet, except the letter J. The longest verse is the 9th verse of the 8th chapter of Esther. The shortest verse is the 35th verse of the 11th chapter of St. John. There are no words or names of more than six syllables.

FICTITIOUS NAMES OF STATES.

Wisconsin—Badger State.
Massachusetts—Bay State.
Mississippi—Bayou State.
Arkansas—Bear State.
Louisiana—Creole State.
Delaware—Diamond State.
New York—Empire State.
New York—Excelsior State.
Connecticut—Freestone State.
New Hampshire—Granite State.
Vermont—Green Mountain State.
Iowa—Hawkeye State.
Indiana—Hoosier State.
Pennsylvania—Keystone State.
Michigan—Lake State.
Texas—Lone Star State.
Maine—Lumber State.
Virginia—Mother of Presidents.
Virginia—Mother of States.
Connecticut—Nutmeg State.
Massachusetts—Old Colony.
Virginia—Old Dominion.
North Carolina—Old North State.
South Carolina—Palmetto State.
Florida—Peninsular State.
Maine—Pine Tree State.
Illinois—Prairie State.
North Carolina—Turpentine State.

FICTITIOUS NAMES OF CITIES.

Aberdeen, Scotland, Granite City.
Alexandria, Egypt, Delta City.
Alton, Ill., Tusselburgh.
Akron, O., Summit City.
Baltimore, Md., Monumental City.
Birmingham, O., Bran Town.
Boston, Mass., Puritan City; Modern Athens; Hub of the Universe; City of Notions; Athens of America; The Hub.
Brooklyn, N. Y., City of Churches.
Buffalo, N. Y., Queen City of the Lakes.
Cairo, Egypt, City of Victory.
Cincinnati, O., Queen City; Porkopolis: Queen of the West; Paris of America.
Chicago, Ill., Garden City.
Cleveland, O., Forest City.

Dayton, O., Gem City of Ohio.
 Detroit, Mich., City of the Straits.
 Duluth, Minn., Zenith City.
 Edinburgh, Scotland, Maiden Town; Northern Athens; **Modern Athens**; Athens of the North.
 Gibraltar, Key of the Mediterranean.
 Hannibal, Mo., Bluff City.
 Havana, Cuba, Pearl of the Antilles.
 Holyoke, Mass., Paper City.
 Indianapolis, Ind., Railroad City.
 Jerusalem, Palestine, City of Peace; **City of the Great King**.
 Kansas City, Mo., Mushroomopolis.
 Keokuk, Ia., Gate City.
 Lafayette, Ind., Star City.
 Limerick, Ireland, City of the Violated Treaty.
 Lowell, Mass., City of Spindles; Manchester of America.
 London, England, City of Masts; Modern Babylon.
 Louisville, Ky., Falls City.
 Madison, Wis., Lake City.
 Milan, Italy, Little Paris.
 Milwaukee, Wis., Cream City.
 Minneapolis, Minn., City of Flour.
 Nashville, Tenn., City of Rocks.
 New Haven, Conn., City of Elms.
 New Orleans, La., Crescent City.
 New York, Gotham; Empire City; Metropolitan City.
 Pekin, Ill., Celestial City.
 Philadelphia, Pa., Quaker City; City of Brotherly Love; **City of Homes**.
 Pittsburgh, Pa., Iron City; Smoky City; Birmingham of America.
 Portland, Me., Forest City.
 Paterson, N. Y., Lyons of America.
 Peoria, Ill., Whisky Town.
 Quebec, Canada, Gibraltar of America.
 Quincy, Ill., Gem City.
 Racine, Wis., Belle City.
 Rome, Italy, Eternal City; Nameless City; Queen of Cities;
Seven-Hilled City; Mistress of the World.
 Rochester, N. Y., Flour City.
 St. Louis, Mo., Mound City.
 St. Paul, Minn., Gem City.
 San Francisco, Cal., Golden City.
 Salem, Mass., City of Peace.
 Salt Lake City, City of the Saints.
 Springfield, Ill., Flower City.
 Streator, Ill., City of the Woods.
 Toledo, O., Corn City.
 Venice, Italy, Bride of the Sea.
 Washington, D. C., City of Magnificent Distances.
 Winnipeg, Manitoba, Gate City of the Northwest.

FORMULÆ FOR WOOD SCREWS.

 N = number. D = diameter.

$$D = (N \times .01325) + .056.$$

$$D = .056.$$

$$N = \frac{D - .056}{.01325}.$$

DIAMETER AND NUMBER OF WOOD SCREWS.

| No. | Diameter. | No. | Diameter. |
|-----|-----------|-----|-----------|
| 0 | .056 | 16 | .268 |
| 1 | .069 | 17 | .281 |
| 2 | .082 | 18 | .293 |
| 3 | .096 | 19 | .308 |
| 4 | .109 | 20 | .321 |
| 5 | .122 | 21 | .334 |
| 6 | .135 | 22 | .347 |
| 7 | .149 | 23 | .361 |
| 8 | .162 | 24 | .374 |
| 9 | .175 | 25 | .387 |
| 10 | .188 | 26 | .401 |
| 11 | .201 | 27 | .414 |
| 12 | .215 | 28 | .427 |
| 13 | .228 | 29 | .440 |
| 14 | .241 | 30 | .453 |
| 15 | .255 | | |

MELTING POINT OF METALS.

| | | |
|-----------------------|-------|-----------------------|
| Platinum | 3080° | Fahr. (Pouillet). |
| Wrought iron..... | 2822 | " " |
| Steel | 2462 | " " |
| Cast iron (Gray)..... | 2210 | " " |
| Gold..... | 2192 | " " |
| Silver..... | 1832 | " " |
| Antimony | 842 | " (I. Lowthian Bell). |
| Zinc | 782 | " " |
| Lead | 620 | " " |
| Tin .. | 475 | " " |

WEIGHT OF GRINDSTONES.

RULE.—Square the diameter (in inches); multiply by thickness (in inches); then by the decimal .06363; the product will be the weight of the stone in pounds.

ALLOYS.

| ALLOYS. | Tin. | Copper. | Zinc. | Antimony. | Lead. | Bismuth. |
|---------------------------------|-------|---------|---------------|-----------|----------------|----------|
| Brass, engine bearings..... | 13 | 112 | $\frac{1}{4}$ | ..... | ..... | ..... |
| Tough brass, engine work..... | 15 | 100 | 15 | ..... | ..... | ..... |
| “ for heavy bearings..... | 25 | 160 | 5 | ..... | ..... | ..... |
| Yellow brass, for turning..... | ..... | 2 | 1 | ..... | ..... | ..... |
| Flanges to stand brazing..... | ..... | 32 | 1 | ..... | 1 | ..... |
| Bell-metal..... | 5 | 16 | ..... | ..... | ..... | ..... |
| Babbitt's metal..... | 10 | 1 | ..... | 1 | ..... | ..... |
| Brass, locomotive bearings..... | 7 | 64 | 1 | ..... | ..... | ..... |
| “ for straps and glands..... | 16 | 130 | 1 | ..... | ..... | ..... |
| Muntz's sheathing..... | ..... | 6 | 4 | ..... | ..... | ..... |
| Metal to expand in cooling..... | ..... | ..... | ..... | 2 | 9 | 1 |
| Pewter..... | 100 | ..... | ..... | 17 | ..... | ..... |
| Spelter..... | ..... | 1 | 1 | ..... | ..... | ..... |
| Statuary bronze..... | 2 | 90 | 5 | ..... | 2 | ..... |
| Type-metal, from..... | ..... | ..... | ..... | 1 | 3 | ..... |
| “ to..... | ..... | ..... | ..... | 1 | 7 | ..... |
| SOLDERS. | | | | | | |
| For lead..... | 1 | ..... | ..... | ..... | $1\frac{1}{2}$ | ..... |
| “ tin..... | 1 | ..... | ..... | ..... | 2 | ..... |
| “ pewter..... | 2 | ..... | ..... | ..... | 1 | ..... |
| “ brazing (hardest)..... | ..... | 3 | 1 | ..... | ..... | ..... |
| “ “ (hard)..... | ..... | 1 | 1 | ..... | ..... | ..... |
| “ “ (soft)..... | 1 | 4 | 3 | ..... | ..... | ..... |
| “ “ or..... | 2 | ..... | ..... | 1 | ..... | ..... |

SURE CURE FOR SMALL-POX AND SCARLET FEVER.

The following small-pox remedy was given to the public by a correspondent of the Stockton (Cal.) *Herald*, who says: “I herewith append a recipe which has been used, to my knowledge, in hundreds of cases. It will prevent or cure small-pox, though the pittings are filling. It will also cure scarlet fever. Here is the recipe as I have used it to cure small-pox. When learned physicians said the patient must die, it cured: Sulphate of zinc, one grain; foxglove (*digitalis*), one grain; half a teaspoonful of sugar. Mix with two tablespoonfuls of water. When thoroughly mixed, add four ounces of water. Take a teaspoonful every hour. Either disease will disappear in twelve hours. For a child, smaller dose according to its age. If countries would compel physicians to use this, there would be no need of pest-houses. If you value advice and experience, use this for that terrible disease.”

DIFFERENT COLORS OF IRON CAUSED BY HEAT.

| Deg. Cen. | Deg. Fah. | |
|--------------|--------------|---|
| 261 | 502 | { Violet, Purple and Dull Blue. Between 261° C to 370° C it passes to Bright Blue, Sea Green, and then disappears. |
| 370 | 680 | |
| 500 | 932 | { Commences to be covered with a light coating of oxide; becomes a deal more impressible to the hammer, and can be twisted with ease. |
| 525 | 977 | |
| 700 | 1292 | Becomes Nascent Red. |
| 800 | 1472 | Somber Red. |
| 900 | 1657 | Nascent Cherry. |
| 1000 | 1832 | Cherry. |
| 1100 | 2012 | Bright Cherry. |
| 1200 | 2192 | Dull Orange. |
| 1300 | 2372 | Bright Orange. |
| 1400 | 2552 | White. |
| 1500 | 2732 | Brilliant White-welding heat. |
| 1600 | 2912 | { Dazzling white. |
| | | |

STANDARD SCREW THREADS.

| Diam. of Screw. | Thread per Inch. | Diam. at root of Thread. | Diam. of Screw. | Thread per Inch. | Diam. at root of Thread. |
|-----------------------|------------------------|--------------------------------|-----------------------|------------------------|--------------------------------|
| $\frac{1}{4}$ | 20 | .185 | 2 | $4\frac{1}{2}$ | 1.712 |
| $\frac{5}{16}$ | 18 | .240 | $2\frac{1}{4}$ | $4\frac{1}{2}$ | 1.962 |
| $\frac{3}{8}$ | 16 | .294 | $2\frac{1}{2}$ | 4 | 2.173 |
| $\frac{7}{16}$ | 14 | .344 | $2\frac{3}{4}$ | 4 | 2.425 |
| $\frac{1}{2}$ | 13 | .400 | 3 | $3\frac{1}{2}$ | 2.628 |
| $\frac{9}{16}$ | 12 | .454 | $3\frac{1}{4}$ | $3\frac{1}{2}$ | 2.878 |
| $\frac{5}{8}$ | 11 | .507 | $3\frac{1}{2}$ | $3\frac{1}{4}$ | 3.100 |
| $\frac{3}{4}$ | 10 | .620 | $3\frac{3}{4}$ | 3 | 3.317 |
| $\frac{7}{8}$ | 9 | .731 | 4 | 3 | 3.566 |
| 1 | 8 | .837 | $4\frac{1}{4}$ | $2\frac{7}{8}$ | 3.825 |
| $1\frac{1}{8}$ | 7 | .940 | $4\frac{1}{2}$ | $2\frac{3}{4}$ | 4.027 |
| $1\frac{1}{4}$ | 7 | 1.065 | $4\frac{3}{4}$ | $2\frac{3}{8}$ | 4.255 |
| $1\frac{3}{8}$ | 6 | 1.160 | 5 | $2\frac{1}{2}$ | 4.480 |
| $1\frac{1}{2}$ | 6 | 1.284 | $5\frac{1}{4}$ | $2\frac{1}{2}$ | 4.730 |
| $1\frac{3}{4}$ | $5\frac{1}{2}$ | 1.389 | $5\frac{1}{2}$ | $2\frac{3}{8}$ | 5.053 |
| $1\frac{7}{8}$ | 5 | 1.490 | $5\frac{3}{4}$ | $2\frac{3}{8}$ | 5.203 |
| 2 | 5 | 1.615 | 6 | $2\frac{1}{4}$ | 5.423 |

Angle of Thread 60°.

Flat at top and bottom $\frac{1}{8}$ of pitch.

COPARTNERSHIPS.

Partnerships may be either general or special. In general partnerships, money invested ceases to be individual property. Each member is made personally liable for the whole amount of debts incurred by the company. The company is liable for all contracts or obligations made by individual members.

Special partners are not liable beyond the amount contributed.

A person may become a partner by allowing people generally to presume that he is one, as, by having his name on the sign or parcel, or in the bills used in the business.

A share or specific interest in the profits or loss of a business, as remuneration for labor, may involve one in the liability of a partner.

In case of Bankruptcy, the joint estate is first applied to the payment of partnership debts, the surplus only going to the creditors of the individual estate.

A dissolution of partnership may take place under express stipulations in the articles of agreement, by mutual consent, by the death or insanity of one of the firm, by award of arbitrators, or by court of equity in cases of misconduct of some member of the firm.

A partner signing his individual name to negotiable paper, which is for the use of the partnership firm, binds all the partners thereby. Negotiable paper of the firm, even though given on private account by one of the partners, will hold all the partners of the firm, when it passes into the hands of the holders, who are ignorant of the fact attending its creation.

Partnership effects may be bought and sold by a partner; he may make contracts; may receive money; indorse, draw and accept bills and notes, and, while this may be for his own private account, if it apparently be for the use of the firm, his partners will be bound by his action, provided the parties dealing with him were ignorant of the transaction being on his private account; and thus representation or misrepresentation of a partner, having relation to business of the firm, will bind the members in the partnership.

In case of death, the surviving partner must account to the representatives of the deceased.

Rule to Calculate the Horse-Power in an Engine.

This rule will prove correct for all ordinary engines; but there may be a very slight variation in the case of an extra long or extra short stroke.

RULE.— Multiply the diameter of the cylinder in inches by itself—in other words, square the diameter in inches, and divide by four.

Size of Lakes, Seas and Oceans.

| LAKES. | Miles Long. | Miles Wide. | SEAS. | Miles Long. |
|---------------------|----------------|----------------|--------------------|----------------|
| Cayuga..... | 36 | 4 | Aral..... | 250 |
| George..... | 36 | 3 | Baltic..... | 600 |
| Constance..... | 45 | 10 | Black..... | 932 |
| Geneva..... | 50 | 10 | Caribbean..... | 1,800 |
| Lake of the Woods.. | 70 | 25 | China..... | 1,700 |
| Champlain..... | 123 | 12 | Caspian..... | 640 |
| Ladoga..... | 125 | 75 | Japan..... | 1,000 |
| Maracaybo..... | 150 | 60 | Mediterranean..... | 2,000 |
| Great Bear..... | 150 | 40 | Okhotsk..... | 600 |
| Ontario..... | 180 | 40 | Red..... | 1,400 |
| Athabasca..... | 200 | 20 | White..... | 450 |
| Winnipeg..... | 240 | 40 | OCEANS. | Miles |
| Huron..... | 250 | 90 | | Square. |
| Erie..... | 270 | 50 | Arctic..... | 5,000,000 |
| Great Slave..... | 300 | 45 | Southern..... | 10,000,000 |
| Michigan..... | 330 | 60 | Indian..... | 20,000,000 |
| Baikal..... | 360 | 35 | Atlantic..... | 40,000,000 |
| Superior..... | 380 | 120 | Pacific..... | 80,000,000 |

Carrying Capacity of a Ten Ton Freight Car.

| | | | |
|-------------|---------------------|----------------|----------------|
| Flour..... | 90 barrels. | Butter..... | 20,000 pounds. |
| Lime..... | 70 " | Lumber..... | 6,000 feet. |
| Salt..... | 70 " | Wheat..... | 340 bushels. |
| Whisky..... | 60 " | Barley..... | 300 " |
| Flour..... | 200 sacks. | Apples..... | 370 " |
| Eggs..... | 130 to 160 barrels. | Corn..... | 400 " |
| Wood..... | 6 cords. | Potatoes..... | 430 " |
| Sheep..... | 80 to 100 head. | Bran..... | 1,000 " |
| Hogs..... | 50 to 60 " | Oats..... | 680 " |
| Cattle..... | 18 to 20 " | Flax Seed..... | 360 " |

The Greatest Battles in History.

The Battle of Actium, B. C. 31, in which the combined fleets of Antony and Cleopatra were defeated by Octavius, and imperialism established in the person of Octavius.

The Battle of Arbela, B. C. 331, in which the Persians, under Tarius, were defeated by the Macedonians and Greeks under Alexander the Great.

The Battle of Marathon, B. C. 490, in which the Athenians, under Mictiades, defeated the Persians, under Datis.

The Battle of Syracuse, B. C. 413, in which the Athenians were defeated by the Syracusans and their allies.

The Battle of Metaurus, B. C. 207, in which the Carthaginians, under Hasdrubul, were defeated by the Romans, under the Consuls, Caius, Claudius, Nero and Marcus Livius.

The Battle of Philippi, B. C. 42, in which Brutus and Cassius were defeated by Octavius and Antony. The fate of the Republic was decided.

The Battle of Blenheim, A. D. 1704, in which the French and Bavarians, under Marshal Tallard, were defeated by the English and their allies, under Marlborough.

The Battle of Chalons, A. D. 451, in which the Huns, under Attila, called the "Scourge of God," were defeated by the confederate armies of Romans and Visigoths.

Battle of Hastings, A. D. 1066, in which Harold, commanding the English army, was defeated by William the Conqueror of Normandy.

The Battle of Lutzen, 1632, which decided the religious liberties of Germany. Gustavus Adolphus was killed.

The Battle of Pultowa, A. D. 1709, in which Charles XII. of Sweden, was defeated by the Russians, under Peter the Great.

The Battle of Tours, A. D. 732, in which the Saracens were defeated by Charles Martel. Christendom was rescued from Islam.

On the 21st of October, 1805, the Great Naval Battle

of Trafalgar was fought. The English defeated the French and destroyed the hopes of Napoleon as to a successful invasion of England.

The Battle of Valmy, A. D. 1792, in which an invading army of Prussians, Austrians and Hessians, under the command of the Duke of Brunswick, were defeated by the French, under Dumouriez.

The Battle of Waterloo, 1815, in which the French, under Napoleon, were defeated by the allied armies of Russia, Austria, Prussia and England, under the Duke of Wellington.

A Woman's Chance to Marry.

$\frac{1}{4}$ of 1 per cent., from 50 to 56 years of age.

$\frac{3}{8}$ of 1 per cent., from 45 to 50 years of age.

$2\frac{1}{2}$ per cent., from 40 to 45 years of age.

$3\frac{3}{4}$ per cent., from 35 to 40 years of age.

$15\frac{1}{2}$ per cent., from 30 to 35 years of age.

18 per cent., from 25 to 30 years of age.

52 per cent., from 20 to 25 years of age.

$14\frac{1}{2}$ per cent., from 15 to 20 years of age.

SOME GOOD MAXIMS.

There is nothing better in heaven than religion.

Our actions of to-day are the thoughts of yesterday.

A truthful woman is the greatest adornment of a home.

If you live in impure thoughts you will be impure in your lives.

Profanity is more or less a profession of your loyalty to the devil.

Nobody ever went to sleep indifferent to religion and waked up in heaven.

A child is loved by God because it has no opinions and wants to learn something.

Don't get into anybody's way with your naturalness, but try to be yourself wherever you go.

Run into heaven barefooted and bareheaded rather than miss it on account of anything in the world.

How to Preserve Eggs.

To each pailful of water, add two pints of fresh slacked lime and one pint of common salt; mix well. Fill your barrel half full with this fluid, put your eggs down in it any time after June, and they will keep two years if desired.

Facts Worth Knowing.

There are 2,754 languages.

America was discovered in 1492.

A square mile contains 640 acres.

Envelopes were first used in 1839.

Telescopes were invented in 1590.

A barrel of rice weighs 600 pounds.

A barrel of flour weighs 196 pounds.

A barrel of pork weighs 200 pounds.

A firkin of butter weighs 56 pounds.

The first steel pen was made in 1830.

A span is ten and seven-eighth inches.

A hand (horse measure) is four inches.

Watches were first constructed in 1476.

The first iron steamship was built in 1830.

The first lucifer match was made in 1829.

Gold was discovered in California in 1848.

The first horse railroad was built in 1826-7.

The average human life is thirty-one years.

Coaches were first used in England in 1569.

Modern needles first came into use in 1545.

Space has a temperature of 200 degrees below zero.

Kerosene was first used for lighting purposes in 1826.

The first newspaper was published in England in 1588.

The first newspaper advertisement appeared in 1652.

Robert Bonner refused \$100,000.00 for the famous trotter *Maud S.*

Until 1776 cotton-spinning was performed by the hand-spinning wheel.

Measure 209 feet on each side and you will have a square acre within an inch.

The first sewing machine was patented by Elias Howe, Jr., in 1846.

The first steam engine on this continent was brought from England in 1753.

The first knives were used in England, and the first wheeled carriages in France in 1559.

The national colors of the United States were adopted by Congress in 1777.

The cost of coal burned by an ocean steamer on a trip will average \$13,000.

The sun is 92,500,000 miles from the earth. The latter receives only one two-billionth of the solar heat.

The nearest fixed star is 16,000,000,000 miles distant, and takes 2200 years for light to reach the earth.

SOCIAL STATISTICS OF CITIES.

Area, population, streets and cost of repairs. Census of 1890.

| CITIES. | Area—Square miles. | Population. | LENGTH OF STREETS IN MILES. | | | | Average width of streets—feet. | Per cent of streets paved. | Proportionate width of sidewalks to Sts. | Miles of streets to each sq. mile of area. | Per cent of street area to city area. | Number of population to each mile of streets. | FINANCIAL. | |
|---------------|--------------------|-------------|-----------------------------|--------|------------------------|--|--------------------------------|----------------------------|--|--|---------------------------------------|---|---|--|
| | | | Total. | Paved. | Graded and curbed only | Average yearly cost of construction and repairs. | | | | | | | Average yearly cost of street cleaning. | |
| | | | | | | | | | | | | | | |
| New York | 39.57 | 1,513,501 | 575 | 358 | 45 | 60 | 62 | 25 | 14.5 | 17 | 2,632 | \$1,024,161 | \$1,075,200 | |
| Chicago | 160.57 | 1,098,576 | ... | ... | ... | 50 | 65 | 25 | 14.9 | 14 | 909 | 637,550 | 283,909 | |
| Philadelphia | 77.65 | 1,046,252 | 1,151 | 750 | 50 | 70 | 57 | 25 | 34.0 | 87 | 1,232 | 393,945 | 165,165 | |
| Brooklyn | 19.22 | 804,377 | 653 | 375 | 3 | 60 | 40 | 20 | 21.9 | 25 | 434 | 837,304 | 126,804 | |
| St. Louis | 48.32 | 460,357 | 1,061 | 422 | 40 | 60 | 100 | 17 | 11.6 | 9 | 1,094 | 825,000 | 136,673 | |
| Boston | 35.28 | 446,507 | 408 | 408 | ... | 40 | 59 | 20 | 42.6 | 53 | 556 | 120,000 | 110,000 | |
| Baltimore | 18.33 | 433,547 | 780 | 459 | 101 | 66 | 27 | 20 | 22.1 | 29 | 871 | 958,743 | 58,437 | |
| San Francisco | 15.46 | 297,990 | 342 | 92 | 190 | 69 | 52 | 20 | 19.4 | 14 | 610 | 855,000 | 185,000 | |
| Cincinnati | 25.00 | 296,309 | 486 | 254 | ... | 50 | ... | ... | ... | ... | ... | ... | ... | |
| Cleveland | 24.88 | 261,546 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| Buffalo | 39.04 | 254,457 | 372 | 194 | ... | 58 | 52 | 40 | 10.0 | 40 | 684 | 573,244 | 13,000 | |
| New Orleans | 37.09 | 241,995 | 625 | 89 | 261 | 60 | 11 | 20 | 16.8 | 19 | 387 | 35,000 | 250,000 | |
| Pittsburg | 6.03 | 238,473 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| Washington | ... | 229,296 | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | ... | |
| Detroit | 20.59 | 205,669 | 400 | 147 | ... | 57 | 37 | 50 | 19.4 | 21 | 514 | 334,617 | ... | |
| Milwaukee | 17.00 | 204,150 | 419 | 72 | 6 | 75 | 17 | 20 | 24.6 | 25 | 487 | 468,077 | ... | |
| Newark | 17.77 | 181,515 | 186 | 48 | 138 | 60 | 26 | 8 | 10.5 | 12 | 976 | 20,000 | 30,000 | |
| Minneapolis | 51.67 | 164,738 | 800 | 25 | 4 | 80 | 3 | 33 | 15.5 | 23 | 206 | 200,000 | ... | |

| | | | | | | | | | | | | | |
|-----------------------|-------|---------|-----|-----|-----|----|-----|-----|-------|----|-------|---------|--------|
| Omaha..... | 24.50 | 139,526 | 508 | 52 | 41 | 66 | 10 | 20 | 120.7 | 26 | 275 | 683,565 | 22,000 |
| Rochester..... | 15.60 | 138,327 | 240 | 72 | 72 | 50 | 30 | ... | 15.4 | 15 | 576 | 141,803 | 20,611 |
| St. Paul..... | 51.42 | 133,158 | 970 | 40 | 325 | 60 | 4 | 17 | 19.0 | 21 | 137 | 757,902 | 37,584 |
| Indianapolis..... | 10.07 | 107,445 | 400 | 234 | 16 | 75 | 59 | 17 | 39.7 | 56 | 269 | 275,000 | 50,000 |
| New Haven..... | 13.97 | 85,981 | 140 | 32 | ... | 60 | 23 | 20 | 10.0 | 11 | 614 | 136,416 | 4,500 |
| Worcester..... | 33.60 | 84,536 | 195 | 195 | ... | 50 | 100 | 33 | 5.8 | 6 | 434 | 140,011 | 7,000 |
| Toledo..... | 19.72 | 82,652 | 438 | 60 | 220 | 66 | 14 | 20 | 22.2 | 28 | 189 | 327,902 | 8,137 |
| Lowell..... | 11.15 | 77,605 | 105 | 19 | 1 | 50 | 18 | 19 | 9.4 | 9 | 739 | 98,712 | ... |
| Nashville..... | 8.44 | 76,309 | 251 | 147 | ... | 50 | 59 | 33 | 29.7 | 28 | 304 | 130,000 | ... |
| Fall River..... | 10.95 | 74,351 | 106 | 2 | 79 | 50 | 2 | 9 | 9.7 | 9 | 701 | 66,500 | ... |
| Cambridge..... | 5.83 | 69,837 | 79 | 23 | ... | 50 | 29 | 17 | 13.7 | 12 | 884 | 45,000 | 25,000 |
| Trenton..... | 3.95 | 58,488 | 100 | 7 | 50 | 60 | 7 | 20 | 25.3 | 28 | 585 | 10,000 | 1,800 |
| Camden..... | 4.34 | 58,274 | 100 | 31 | 20 | 60 | 31 | 25 | 23.0 | 25 | 583 | 22,000 | 11,000 |
| Lynn..... | 10.64 | 55,684 | 125 | 82 | 30 | 50 | 66 | 17 | 11.7 | 11 | 445 | 40,000 | 10,000 |
| Hartford..... | 14.66 | 53,182 | 130 | 80 | 50 | 70 | 62 | 13 | 8.9 | 11 | 409 | 46,783 | 5,623 |
| Evansville..... | 4.42 | 50,674 | 136 | 33 | 52 | 70 | 24 | 33 | 30.8 | 41 | 373 | 33,713 | 76,806 |
| Los Angeles..... | 27.00 | 50,394 | 800 | 83 | 76 | 60 | 10 | 17 | 28.9 | 33 | 63 | ... | ... |
| Lawrence (Mass.)..... | 6.67 | 44,559 | 82 | 75 | ... | 50 | 91 | 17 | 12.3 | 12 | 543 | 33,209 | 3,040 |
| Hoboken..... | 1.47 | 43,561 | 30 | 17 | 3 | 58 | 57 | 25 | 20.4 | 22 | 1,452 | 20,000 | 2,000 |
| Dallas..... | 7.68 | 38,140 | 529 | 25 | 66 | 60 | 5 | 10 | 69.0 | 78 | 72 | 18,000 | 6,000 |
| Sioux City..... | 30.90 | 37,862 | 340 | 14 | 75 | 80 | 4 | 17 | 11.0 | 17 | 111 | 758,157 | ... |
| Portland, Me..... | 2.51 | 36,608 | 56 | 9 | 43 | 50 | 16 | 17 | 22.3 | 21 | 654 | 58,000 | ... |
| Holyoke..... | 3.98 | 35,528 | 50 | 50 | ... | 60 | 100 | 17 | 12.6 | 14 | 711 | 18,000 | ... |
| Binghamton..... | 10.04 | 35,093 | 80 | 4 | 70 | 50 | 5 | 9 | 8.0 | 76 | 439 | 15,000 | 1,000 |
| Duluth..... | 3.23 | 32,725 | 224 | 35 | 20 | 66 | 16 | 25 | 69.3 | 87 | 146 | 496,642 | 5,000 |
| Elmira..... | 4.45 | 28,070 | 90 | 43 | 5 | 55 | 46 | 25 | 20.2 | 21 | 312 | 12,000 | 2,000 |
| Joliet..... | .37 | 27,407 | 98 | 44 | ... | 65 | 45 | 17 | 26.5 | 32 | 280 | 14,338 | 1,500 |
| Canton..... | 6.80 | 26,327 | 150 | 5 | 115 | 60 | 3 | 20 | 22.0 | 25 | 176 | 32,000 | ... |
| Taunton..... | 13.65 | 25,389 | 200 | 170 | 20 | 40 | 85 | 14 | 14.7 | 11 | 127 | 36,000 | ... |
| Davenport..... | 4.41 | 25,161 | 140 | 26 | 79 | 70 | 19 | 17 | 31.7 | 40 | 180 | 30,000 | 5,000 |
| La Crosse..... | 8.19 | 25,053 | 125 | 15 | 110 | 66 | 12 | 25 | 15.3 | 18 | 200 | 20,378 | ... |
| Newport, Ky..... | 1.20 | 24,938 | 30 | 27 | 3 | 66 | 90 | 40 | 25.0 | 31 | 831 | 15,000 | 4,000 |
| Rockford..... | 6.37 | 25,589 | 120 | 31 | 50 | 66 | 26 | 8 | 18.8 | 25 | 197 | 1,200 | 2,000 |

POPULATION OF THE UNITED STATES AT EACH CENSUS, FROM 1850 TO,
AND INCLUDING, 1890.

| STATES AND TERRITORIES. | 1890. | 1880. | 1870. | 1860. | 1850. | |
|-------------------------|-------|-----------|-------|-----------|-------|-----------|
| Alabama..... | 17 | 1,513,017 | 16 | 996,992 | 12 | 771,623 |
| Arkansas..... | 24 | 1,128,179 | 26 | 484,471 | 25 | 209,897 |
| California..... | 22 | 1,208,130 | 24 | 864,694 | 23 | 92,597 |
| Colorado..... | 31 | 412,198 | 35 | 194,327 | ... | ... |
| Connecticut..... | 29 | 746,258 | 28 | 622,700 | 24 | 370,792 |
| Delaware..... | 40 | 168,493 | 37 | 146,608 | 32 | 91,532 |
| Florida..... | 32 | 391,422 | 34 | 269,493 | 31 | 87,445 |
| Georgia..... | 12 | 1,837,353 | 13 | 1,542,180 | 11 | 906,185 |
| Idaho..... | 42 | 84,385 | ... | ... | ... | ... |
| Illinois..... | 3 | 3,826,351 | 4 | 3,077,871 | 4 | 851,470 |
| Indiana..... | 8 | 2,192,404 | 6 | 1,978,301 | 6 | 988,416 |
| Iowa..... | 10 | 1,911,896 | 10 | 1,624,615 | 20 | 192,214 |
| Kansas..... | 19 | 1,427,096 | 20 | 996,096 | 33 | ... |
| Kentucky..... | 11 | 1,858,635 | 8 | 1,648,690 | 9 | 982,405 |
| Louisiana..... | 25 | 1,118,587 | 22 | 939,946 | 17 | 517,762 |
| Maine..... | 30 | 661,086 | 27 | 648,936 | 23 | 583,169 |
| Maryland..... | 27 | 1,042,390 | 23 | 934,943 | 16 | 583,034 |
| Massachusetts..... | 6 | 2,238,943 | 7 | 1,783,085 | 6 | 994,514 |
| Michigan..... | 9 | 2,093,889 | 9 | 1,636,937 | 17 | 397,654 |
| Minnesota..... | 20 | 1,301,826 | 26 | 780,773 | 20 | 6,077 |
| Mississippi..... | 21 | 1,289,600 | 18 | 1,131,597 | 14 | 606,526 |
| Missouri..... | 5 | 2,679,184 | 5 | 2,168,380 | 8 | 682,044 |
| Montana..... | 41 | 132,159 | ... | ... | ... | ... |
| Nebraska..... | 26 | 1,058,910 | 30 | 452,402 | 35 | ... |
| Nevada..... | 44 | 45,761 | 38 | 62,266 | 36 | ... |
| New Hampshire..... | 33 | 376,530 | 31 | 346,991 | 27 | 317,976 |
| New Jersey..... | 13 | 1,444,933 | 19 | 1,131,116 | 21 | 489,553 |
| New York..... | 1 | 5,997,853 | 1 | 5,052,871 | 1 | 3,097,394 |
| North Carolina..... | 16 | 1,617,947 | 15 | 1,304,750 | 12 | 860,089 |
| North Dakota..... | 39 | 162,719 | ... | ... | ... | ... |

| | | | | | | | | | | |
|---------------------------|----|------------|----|------------|----|------------|----|------------|----|------------|
| Ohio..... | 4 | 3,672,316 | 3 | 3,198,062 | 3 | 2,665,260 | 3 | 2,339,511 | 3 | 2,339,339 |
| Oregon..... | 38 | 813,767 | 36 | 174,768 | 36 | 90,923 | 34 | 52,465 | 32 | 13,394 |
| Pennsylvania..... | 2 | 5,258,014 | 2 | 4,282,891 | 2 | 3,521,951 | 2 | 2,906,215 | 2 | 2,311,788 |
| Rhode Island..... | 35 | 345,506 | 33 | 276,531 | 32 | 217,353 | 29 | 174,620 | 28 | 147,545 |
| South Carolina..... | 23 | 1,151,149 | 21 | 995,577 | 22 | 705,606 | 18 | 703,708 | 14 | 668,507 |
| South Dakota..... | 37 | 328,808 | | | | | | | | |
| Tennessee..... | 13 | 1,767,518 | 12 | 1,542,359 | 9 | 1,258,520 | 10 | 1,109,801 | 6 | 1,002,717 |
| Texas..... | 7 | 2,235,523 | 11 | 1,591,749 | 19 | 818,579 | 23 | 604,215 | 25 | 212,592 |
| Vermont..... | 36 | 332,422 | 32 | 332,286 | 30 | 330,551 | 28 | 315,098 | 23 | 314,120 |
| Virginia..... | 15 | 1,655,980 | 14 | 1,512,565 | 10 | 1,235,163 | 5 | 1,596,318 | 4 | 1,421,661 |
| Washington..... | 84 | 349,390 | | | | | | | | |
| West Virginia..... | 28 | 762,794 | 29 | 618,457 | 27 | 442,014 | | | | |
| Wisconsin..... | 14 | 1,686,880 | 16 | 1,315,497 | 15 | 1,054,670 | 15 | 775,881 | 24 | 305,391 |
| Wyoming..... | 43 | 60,705 | | | | | | | | |
| The States..... | | 61,908,906 | | 49,371,340 | | 38,155,505 | | 31,218,021 | | 23,067,262 |
| Arizona..... | 4 | 59,620 | 6 | 40,440 | 9 | 9,658 | | | | |
| Dakota..... | | | 3 | 135,177 | 8 | 14,181 | 6 | 4,837 | | |
| District of Columbia..... | 1 | 230,392 | 1 | 177,624 | 1 | 131,700 | 2 | 75,080 | 2 | 51,687 |
| Idaho..... | | | 8 | 32,610 | 7 | 14,999 | | | | |
| Indian..... | | | | | | | | | | |
| Montana..... | | | 7 | 39,159 | 6 | 20,595 | | | | |
| New Mexico..... | 3 | 153,593 | 4 | 119,565 | 2 | 91,874 | 1 | 93,516 | 1 | 61,547 |
| Oklahoma..... | 5 | 61,834 | | | | | | | | |
| Utah..... | 2 | 207,905 | 2 | 143,963 | 3 | 86,786 | 3 | 40,273 | 3 | 11,380 |
| Washington..... | | | 5 | 75,116 | 5 | 23,955 | 5 | 11,594 | | |
| Wyoming..... | | | 9 | 20,789 | 10 | 9,118 | | | | |
| The Territories..... | | 713,344 | | 784,443 | | 402,866 | | 225,300 | | 124,614 |
| The United States..... | | 62,622,250 | | 50,156,783 | | 38,558,371 | | 31,443,921 | | 23,191,876 |
| Per cent of gain..... | | 24.8 | | 30.08 | | 22.65 | | 35.11 | | 35.83 |

NOTE.—The narrow column under each census year shows the order of the States and Territories when arranged according to magnitude of population. Population of Alaska and Indian Territory not reported.

Total Number of Postoffices in the United States.

The number of postoffices of each class at the close of the fiscal year 30th of June, 1890, with comparisons, was:

| CLASS. | 1890. | 1889. | 1872. |
|-------------|--------|--------|--------|
| First..... | 102 | 97 | ..... |
| Second..... | 517 | 497 | 1,200 |
| Third..... | 2 119 | 2,090 | ..... |
| Fourth..... | 59,663 | 56,315 | 30,663 |
| Total..... | 62,401 | 58,999 | 31,863 |

The number of new offices established in 1890
was.....4,236

The number of new offices established in 1889
was.....2,770

POINTS OF LAW.

(By a Supreme Court Lawyer.)

The advice on matters in the follow pages has been acquired at a great expense, and is absolutely correct. It can be relied upon as such.

Lawyers' fees can be saved, and much annoyance and expense avoided by acting on the advice given here.*

NEGOTIABLE INSTRUMENTS.

Introduction.—The laws governing mercantile transactions, and particularly such as relate to negotiable instruments, are, in the main, of very ancient origin, and are derived for the most part from the well established usages of merchants, which have been adopted, sanctioned and confirmed by the courts, and in many instances.

redeclared by statute. These usages and customs constitute what is called, in the language of the books, the law-merchant.

Promissory Notes.—A note of hand, as it is called, is a written promise to pay to a person certain, his order, or bearer, at a specified time, a given sum of money. To render it negotiable, that is, so that it may be transferred by endorsement or delivery, it must be payable to "order" or "bearer," and unless these words appear it will not be negotiable. Further, the promise must be absolute and uncoupled with any condition, and the time of payment must be certain and not dependent upon any contingency. Again, the promise must be for a definite sum and must be payable in money. These are all of the essence of negotiability. Failing in any of the foregoing particulars, the note may still be good as a contract, but it will not be a negotiable instrument.

It may be written upon anything capable of receiving written characters, in any language susceptible of translation, and with any substance that will leave a permanent mark; hence a note written in pencil is just as valid as one written with ink. It need not be dated, for delivery gives it effect, although a date is customary and proper, and when no time is specified it is payable on demand. It need not be signed at the bottom, provided the name of the maker elsewhere appears and was written with intent to bind, as: "I, John Smith, promise," etc.. but the better way is to subscribe the note.

The payee must be named or designated, unless the note is drawn to bearer, and if drawn to the maker's own order possesses no validity until he has indorsed it. A note payable to bearer is transferable by simple delivery and passes from hand to hand without anything further, and the same is true of a note payable to the payee's order after he has indorsed it. In such a case any holder may write over such indorsement an order to pay to himself. But if indorsed in full, that is to pay to some person certain, it can only be transferred by the subsequent indorsement of such designated person.

It is customary to write notes for "value received," but this is not necessary, for a negotiable note imports a consideration, and, except as between the parties, want

of consideration cannot be shown if the note was negotiated in good faith and before maturity, while as between the parties consideration may always be disproved, even though expressed. The better practice, however, is to write them as expressing consideration.

One who places his name on the back of a note as an indorser thereby enters into an undertaking with his assignee, as well as others into whose hands the note may come, that he will pay it if the maker does not; but he may protect himself against the claims of subsequent indorsers by making his indorsement "without recourse." On the other hand, a party, by simply receiving and passing a note while under a blank indorsement, and without putting his name to it, assumes no responsibility in relation to it.

The holder or indorsee of a note has a right of action against every one whose name appears on the same, whether as maker or indorser, but it is his duty to present the note promptly at maturity and demand payment; if payment is refused, he should immediately notify the indorsers, and a failure so to do will, in most cases, discharge the indorser from liability. He should further use all reasonable means to compel payment by the maker before resorting to the indorsers, and the law only excuses him from this duty where at the time of maturity the maker is hopelessly insolvent and a suit against him would be unavailing.

Prior to maturity, any person who takes a note without notice of any defect, and pays therefor a valuable consideration, will be protected against any equities existing in favor of the maker; but one who takes it as a mere volunteer, paying no value therefor, or one who receives it after it has become due, even though in good faith, and for value, will take it subject to all its infirmities, and any defense that would have been availing as against the payee may be interposed as to them.

Due Bills are not distinguishable in general effect from promissory notes, and are governed by the same rules and assignable in the same manner.

Certificates of Deposit are, in effect, promissory notes, and subject to the same rules and principles applicable to that class of paper.

Warehouse Receipts are not technically negotiable, but stand in the place of the property itself; the delivery of the receipts has the same effect, in transferring the title to the property, as the delivery of the property itself. They are, however, frequently declared negotiable paper by statute.

Drafts.—The draft, or bill of exchange, is the oldest form of negotiable paper, and is said to have existed as early as the first century. Drafts are governed by the same general rules as notes, and all the remarks of the foregoing paragraphs concerning negotiability are equally applicable here.

It is the duty of the holder of a bill to present it for acceptance without delay, and if it is payable at sight, or at a certain time after sight, no right of action will accrue against any person until it has been so presented. If it be not accepted, when properly presented, or, if accepted, be not paid when due, the further duty devolves on the holder to have it regularly protested by a notary public. This is essential, however, only in case of foreign bills, and is not required for inland exchange or notes. Simple notice in the latter case is sufficient.

Checks.—A check on bank is a species of bill of exchange, but is governed by somewhat different rules from the ordinary bill. It need not be presented for acceptance, for a bank is bound to pay at any time if it have funds of the drawer on deposit; nor is it material that the holder delay presentment for payment. A check should, however, be presented immediately; this the drawer has a right to expect, and the delay is at the holder's risk, for if the bank fails in the meantime, the loss falls on him, if the drawer had funds on deposit sufficient to have paid the check had it been timely presented.

Certifying a check practically amounts to an acceptance and binds the bank as an acceptor.

Checks should be drawn to order to guard against loss and theft, and at the same time it acts as a receipt of the payee. A check is not a payment until it has been cashed.

In paying a forged check the loss falls on the bank, which is bound to know the signature of its own depositors, and, in like manner, if the check has been fraudulently raised, the drawer is chargeable only with the original amount.

INNS AND INN-KEEPERS.

An Inn is a public house for the lodging and entertainment of travelers for compensation, and the person who conducts such house is called an inn-keeper. To enable him to obtain his compensation the law invests an inn-keeper with peculiar privileges, giving him a lien upon the personal property brought into the inn by the guest, and on the other hand holds him to a strict degree of responsibility to the guest if the goods are lost or stolen.

The essential character of an inn is, that it is open for all who may desire to visit it; hence, a mere private boarding-house, or lodging-house, cannot, in any proper sense, be regarded as an inn; nor will a coffee-house or restaurant come within the term. A person who entertains travelers occasionally, although he may receive compensation, is not an inn-keeper, nor liable as such, provided he does not hold himself out in that character.

An Inn-keeper is bound to receive all travelers and wayfaring persons who may apply to him, and to provide entertainment for them, if he can accommodate them, unless they are drunk, or disorderly, or afflicted with contagious diseases. If a person be disorderly he may not only refuse to receive him, but even after he has received him may eject him from the house.

He is further bound to exercise a high degree of care over the person and property of his guests, and is held to a strict responsibility for all loss or damage which may occur through his negligence. This responsibility extends not only to his own acts, and the acts of his servants, but also to the acts of his other guests. The liability of an inn-keeper commences from the time the goods are brought into the inn or delivered to any of the inn-keeper's servants; and a delivery into the personal custody of the inn-keeper is not necessary in order to make him responsible. He is not liable for what are termed the acts of God, or the public enemy; nor for property destroyed without his negligence by accidental fire; and, generally, the inn-keeper will be exonerated if the negligence of the guest occasion the loss in such a way that the loss would not have happened if the guest had used the ordinary care that a prudent man may be reasonably expected to have taken under the circumstances.

The strict liability of an inn-keeper has been much modified by statute, particularly in regard to money and valuables, and where the inn-keeper provides, in the office or some other convenient place in the hotel, an iron safe for the keeping of money, jewels, etc., and notifies his guests of that fact, and the guest neglects to avail himself of the opportunity thus afforded, the inn-keeper will not be liable for the losses sustained by the guest by theft or otherwise.

A guest, in the restricted and legal sense of that term, is the only person who is entitled to the privileges of protection, and to entitle him to this he must have the character of a traveler, a mere sojourner or temporary lodger, in distinction from one who engages for a fixed period, and at a certain agreed rate; but if a party is in fact a wayfarer, and his visit is only transient, it matters not how long he remains, provided he retains this character. Thus, regular boarders by the week or month are not guests, nor are they entitled to the privileges of guests; and on the other hand, in the absence of an enabling statute, the landlord is not, as to them, an inn-keeper, and as such entitled to a lien on their effects for his compensation.

COMMON CARRIERS.

Generally.—A common carrier is one who undertakes for hire to transport the persons or goods of such as choose to employ him, from one point to another, and who does this as a business. The law compels him to take the goods or persons of all who may apply and to make due transport of them; it gives him a lien on such goods or on the baggage of passengers for his compensation, but at the same time holds him liable for all loss or injury, even though occurring without any fault or neglect on his part. Included under this head are dray and truckmen, hackmen, stage coach, railway and steamboat companies, and indeed all who hold themselves out as transporters, either of persons or goods, whether by land or water.

Carriers of Passengers.—A carrier of passengers is bound to receive all who apply; to treat all alike; to provide proper carriages and not to overload them; to

stop at proper intervals for rest or food; to carry his passengers over the whole route contracted for, and to exercise the utmost care in protecting them from peril while on the journey. Failing in any of these particulars he is responsible, not only to the extent of the actual damage caused thereby, but frequently for pain and injury to the feelings.

In the sale of a ticket for transportation the foregoing is the implied agreement on the part of the carrier, and the passenger on the other hand accepts such ticket and contracts for passage subject to the reasonable regulations of the company.

A carrier of passengers is liable for any loss or damage to the baggage of his passengers, but only to the extent of what may reasonably and naturally be carried as baggage. This would not include large sums of money, nor merchandise, and, as a rule, damages in this respect are limited to such articles of necessity and personal convenience as are usually carried by travelers. Nor will the carrier be liable for any baggage not delivered to him or his servants; and hence, if the passenger keeps his baggage about his person, or in his own hands, or within his sight and immediate control, he assumes the risk of loss, and the carrier will not be held liable unless himself in fault.

Carriers of Goods.—A common carrier is an insurer of the safe transportation and delivery of all property intrusted to him for carriage, except as against such losses as are caused by the immediate act of God or the public enemy, and this liability continues until the goods have arrived at their destination and for a reasonable time after they are unloaded. But after safe delivery in the freight depot of the carrier and a reasonable time has elapsed for their removal, and particularly if notice of their arrival has been given to the consignee, the liability of the carrier as such ceases, and he will hold the property as a warehouseman only. In this latter event he will be bound to no more than ordinary care.

The acts of God are held to extend only to such inevitable accidents as occur without the intervention of man's agency. Hence, the carrier is not responsible for losses occurring from natural causes, such as frost, fermenta-

tion, evaporation or natural decay of perishable articles, nor for the natural and necessary wear in the course of transportation, provided he exercises all reasonable care to have the loss or deterioration as little as practicable.

Carriers, both by land and water, are bound to take the goods of all who offer, and if they refuse, without just excuse, are liable to an action; yet they may restrict their business within such limits as they may deem expedient, and are not bound to accept goods out of the usual line of their business. They may also qualify their responsibility by notice brought to the knowledge of the shipper and assented to by him, but cannot even then excuse gross negligence on their part.

Warehousemen are persons who receive goods and merchandise to be stored for hire, and is the character sustained by a carrier after the goods have reached their destination. A warehouseman is bound to use ordinary care in preserving such goods and merchandise, and his neglect so to do will render him liable for any damage that may accrue. His liability commences as soon as the goods arrive at the warehouse.

Sleeping Cars.—Though sleeping cars are, comparatively, a modern invention, their wide use and general adoption by the public has already created quite a voluminous mass of law upon the subject, and the rights, both of the companies and the public, have become tolerably well defined. The service of the railway companies and of the sleeping car companies, though rendered in connection, are entirely separate and distinct. The business of the former is to furnish transportation, of the latter to provide accommodations that travelers may sleep, and in so doing they deal only with persons who are provided with tickets entitling them to transportation by the railway company over whose lines they operate.

The sleeping car companies are not common carriers, like the railway companies, nor are they subject to the duties or responsibilities of carriers, nor can they be considered as inn-keepers, though performing many of their offices. They are not, therefore, insurers of the safety of all property taken into the car by one who has purchased the use of a berth. They are, however, bound to

afford protection to a sleeping passenger, and to exercise a reasonable care that he does not suffer loss. The faithful performance of this undertaking is the limit of their duty in this respect. They must keep a watch during the night to see that no unauthorized persons intrude themselves into the car, and take reasonable care to prevent thefts by the occupants; failing in this, they are liable for neglect.

The measure of their liability is limited to the value of such articles as are usually and ordinarily carried for comfort and convenience: the small articles usually carried in the hand, the clothing and personal ornaments of the passenger, and a reasonable sum of money for traveling expenses.

The nature of the employment of the sleeping car companies is public, and in this respect is the same as a common carrier or inn-keeper. They must treat all persons with fairness, and without unjust discrimination. Where there are berths not engaged, it is their duty to furnish them to unobjectionable applicants on tender of the customary price.

The passenger, when he is assigned a berth, impliedly agrees to conduct himself in a quiet and orderly manner, to take good care of the berth while in his possession, and surrender the same at the end of his journey in as good condition as when assigned to him, necessary wear excepted. The company, on the other hand, impliedly agrees that it will use ordinary and proper means to preserve order in the car during the journey, and especially during the sleeping hours; that it will furnish such conveniences as are necessary to the health and comfort of the passenger and permit him to quietly and peaceably occupy the berth engaged by him during the journey.

THE LAW OF THE ROAD.

General Principles.—To prevent collisions, and to secure the safety and convenience of travelers meeting and passing each other upon the highway, a code of rules has been adopted which constitutes what is called the law of the road. These rules, originally established by custom, have, in many instances, been re-enacted and declared by statute, and are of general and uniform observance in all

parts of the United States. In general, they apply to private ways, as well as public roads, and, indeed, extend to all places appropriated, either by law or in fact, for the purposes of travel.

The fundamental rule, applicable alike to all who use a traveled way, is, that every person must exercise reasonable care, adapted to the place and circumstances, to prevent collision and avoid accidents, and to this all other rules are subsidiary. No one will be entitled to redress for an injury sustained on the highway where his own negligence contributed to such injury, nor will the fact that a fellow-traveler fails to observe the law in the use of the road absolve another who is in the right from the duty of exercising ordinary care to avoid injury to himself or to prevent injury to the party who is in the wrong. At the same time, a person lawfully using a public highway has a right to assume that a fellow-traveler will observe the law and exercise ordinary care and prudence, and to govern his own conduct in determining his use of the road accordingly. This assumption he may rely on, not to justify carelessness on his own part, but to warrant him in pursuing his business in a convenient manner.

Vehicles.—It is a primary rule that vehicles meeting on a highway must bear or keep to the right. This, however, applies only to passing vehicles, for a person having before him the entire road free from carriages or other obstructions, and having no notice of any carriage behind him, is at liberty to travel upon any part of the way as suits his convenience or pleasure, and no blame can be imputed to him. But while a traveler may well occupy any part of the road if no other is using any portion of it, he must, upon all occasions of the meeting of another, reasonably turn to the right; and in all cases of a crowded condition of a thoroughfare must keep to the right of the center or traveled part of the way. A driver may, indeed, pass on the left side of the road, or across it, for the purpose of stopping at a house, a store, or other object on that side; but he must not interfere or obstruct another lawfully passing on that side; and if he does, he acts at his peril, and must answer for the consequences of his violation of duty. In such case he must pass before or wait until the person on that side of the way has passed on

Where two drivers are moving in the same direction, the one in advance is entitled to the road, provided he does not obstruct it, and is not bound to turn out for the other if there is room for the latter to pass on either side ; if, however, there is not sufficient room to pass, the foremost traveler should yield an equal share of the road, on request made, if that is practicable. If it is not practicable, then they must defer passing until they reach more favorable grounds. If the leading traveler then refuses to comply with the request to permit the other to pass him, he will be answerable for such refusal. Ordinarily, when a driver attempts to pass another on a public road, he does so at his peril, and will be held responsible for all damages which he causes to the one whom he attempts to pass, and whose right to the proper use of the road is as great as his, unless the latter is guilty of such recklessness, or even gross carelessness, as would bring disaster upon himself.

The rule requiring persons meeting upon the highway to keep to the right is not imperative, however, and where a driver cannot safely turn to the right on meeting another vehicle, the law will absolve him from negligence in not attempting impossibilities ; but where it is not practicable to pass to the right, either of the travelers should stop a reasonable time until the other passes ; nor will the rule apply in the winter season, when the depth of snow renders it difficult or impossible to ascertain where the center of the road is. In such cases the center of the road is the beaten or traveled track, without reference to the worked part of the road. Again, the rule does not apply when one vehicle is passing along one street and another is passing into said street from a cross street.

A traveler is bound to keep his harness and carriage in good condition, and is liable for any damage that may result from a failure to do so ; he must not drive at an immoderate rate of speed, and must yield the road to a heavier or loaded vehicle.

Equestrians are not governed by the same stringent rules that apply to drivers of vehicles, and usually all that is required of them is to exercise prudent care under the existing circumstances. They need not turn out in any particular direction on meeting another horseman or a

vehicle, but in crowded thoroughfares must keep to the proper side in passing, and must yield the traveled part of the road to a wagon.

Pedestrians have a right to use the carriage-way as well as the sidewalk, and drivers must exercise reasonable care to avoid injuring them, but a foot-passenger in crossing the street of a city has no prior right of way over a passing vehicle; both are bound to act with prudence to avoid an accident, and it is as much the duty of the pedestrian to look out for passing vehicles as it is for the driver to see that he does not run over any one; nor does the rule requiring vehicles to keep to the right apply to carriages and foot-passengers, for, as regards a foot-passenger, a carriage may go on either side.

LANDLORD AND TENANT.

The relation of landlord and tenant exists by virtue of a contract for the use or occupation of lands or tenements, either for a definite period, for life, or at will. It is usually created by express contract, but its existence will be implied by law whenever there is an ownership of land on the one hand and an occupation of it by permission on the other. In every such case it will be presumed that the occupant intends to compensate the owner for such use. While the relation may be inferred from a variety of circumstances, the most obvious acknowledgment is the payment of rent. If a tenant under an express contract hold over after the termination of his term, the landlord may consider him as a tenant, and, indeed, is so understood, unless he takes some steps to eject him. If the landlord receives rent from him, or by any other act admits the tenancy, a new leasing begins, and can only be terminated by a proper notice to quit.

The rights and obligations of the parties are usually considered as having commenced from the date of the lease, if there be one, and no other time has been designated as the commencement of the tenancy, or, if there be no date from the delivery of the papers, and if there be no writings, from the time the tenant entered into possession.

The Landlord is bound to protect the possession of

his tenant, and to defend him against every one asserting a paramount right. Nor can the landlord do any act himself calculated to disturb the enjoyment of the tenant. He must, unless otherwise agreed, pay all taxes and assessments on the property, and all other charges of his own creation; and if the tenant, in order to protect himself in the enjoyment of the land, is compelled to make a payment which should have been made by the landlord, he may call upon his landlord to reimburse him, or deduct the amount from the rent.

The landlord has no right of possession during the continuance of the lease, nor indeed any substantial rights in the property further than such as may be necessary to protect his reversionary interests. He may go upon the premises peaceably and during reasonable hours, for the purpose of viewing same and ascertaining whether any waste or injury has been committed, and may make such repairs as are necessary to prevent waste; but he is under no obligation to make any repairs, nor does he guarantee that the premises are reasonably fit for the purposes for which they were taken. Nor can the tenant make any repairs at the expense of the landlord in the absence of a special agreement.

The tenant is entitled to all the rights incident to possession, and to the use of all the privileges appendant to the land, and, on the other hand, is personally liable for any misuse of same, or any nuisance or obstruction he may erect. He must use the premises in such a manner that no substantial injury shall be done them, and that they may revert to the landlord at the end of the term unimpaired by any negligent or willful conduct on his part. He must keep the premises in fair repair at his own expense, but is not bound to rebuild structures which have accidentally become ruinous during his occupation; nor is he answerable for incidental wear and tear, nor accidental fire, or flood.

He must further punctually pay the rent reserved, or if none have been specifically reserved, then such reasonable compensation as the premises are fairly worth. In the absence of special agreement he must pay only for the time he has had the beneficial enjoyment, but if he has agreed to pay for an entire term, as a rule nothing short

of an eviction will excuse him from such payment. If he is evicted by a third person, or if the landlord annoys him by the erection of a nuisance, or renders the premises untenable, or makes his occupation so uncomfortable as to justify his removal, he will be discharged from the payment of rent.

The rights and liabilities of the relation are not confined to the immediate parties, but attach to all persons to whom the estate is transferred, or who may succeed to the possession of the premises. A landlord may not violate his tenant's rights by a sale of the property, nor can the tenant avoid his responsibility by assigning his term. The purchaser of the property becomes, in one case, the landlord, with all his rights and remedies, while in the other the assignee of the tenant assumes all the responsibilities of the latter, but the original lessee is not thereby discharged from his obligations.

The tenancy may be terminated in a variety of ways. If for a definite time, or conditioned on the happening of a certain event, it expires by its own limitation, and usually, when depending upon the express conditions of a lease, no notice to quit is necessary. If from year to year, or at will, a notice is always necessary. This must be in writing, and explicitly require the tenant to surrender up the premises. It must be served upon the tenant and afford the statutory notice in regard to time. A breach of any of the covenants of the lease will forfeit the tenant's rights, and when a tenancy has been terminated, by whatever cause, the landlord's right to re-enter becomes absolute.

The largest bell in the world is the great bell of Moscow, at the foot of the Kremlin. Its circumference at the bottom is nearly 68 feet, and its height more than 23 feet. In its stoutest part it is 23 inches thick, and its weight has been computed to be 43,772 lbs. It has never been hung, and was probably cast on the spot where it now stands. A piece of the bell is broken off. The fracture is supposed to have been occasioned by water having been thrown upon it when heated by the building erected over it being on fire.

LO ! THE POOR INDIAN !

The total Indian population of the United States, exclusive of Alaska, but including 32,567 counted in the general census, being the taxed or taxable Indians, numbers 249,273. The following table gives the division of the Indians in detail:

Indians on Reservations or at Schools, under Control of the Indian Office (not taxed or taxable)..... 133,382
Indians Incidentally under the Indian Office, and Self-supporting:

The Five Civilized Tribes, Indians and Colored:

| CIVILIZED TRIBES. | \| COLORED. \| | TOTAL. | |
|--|----------|--------|---------------|
| Cherokee Indians.... | 25,357 | 4,242 | 29,599 |
| Chickasaw Indians .. | 3,464 | 3,718 | 7,182 |
| Choctaw Indians | 9,996 | 4,401 | 14,397 |
| Creek Indians..... | 9,291 | 5,341 | 14,632 |
| Seminole Indians.... | 2,539 | 22 | 2,561 |
| | | | <hr/> 68,371 |
| Deduct number of colored persons probably not members of tribes (estimated)..... | | 3,500 | |
| | | | <hr/> 64,871 |
| Indians other than Chickasaws in that Nation..... | | | 1,161 |
| Indians other than Choctaws in that Nation.... | | | 257 |
| Population of the Five Civilized Tribes: | | | |
| Indians..... | | 52,065 | |
| Colored Indian Citizens and Claim- ants .. | | 14,224 | |
| | | | <hr/> 66,289 |
| Total | | | 8,278 |
| Pueblos of New Mexico..... | | | 5,304 |
| Six Nations, Saint Regis, and other Indians of New York | | | 2,885 |
| Eastern Cherokees of North Carolina..... | | | |
| Indians Taxed or Taxable, and Self-sustaining Citizens, counted in the General Census (98 per cent not on reservations)..... | | | 32,567 |
| Indians under Control of the War Department, Prisoners of War (Apaches at Mount Vernon Barracks).... | | | 384 |
| Indians in State or Territorial Prisons..... | | | 184 |
| | | | <hr/> 249,273 |
| Total | | | |

HIGHER EDUCATION.

There are, in the United States (1892):

415 Universities and Colleges of Liberal Arts;
7,918 Instructors are employed by them;
118,581 Students attending them.
\$8,635,385 is the value of their Scientific Apparatus.
\$64,259,344, the value of Grounds and Buildings:
\$10,801,918, their total yearly Income.

THE NAVY OF THE UNITED STATES.

Fleet.

| | | |
|---|---|----|
| FIRST RATE (battle ships), none built, 4 building..... | = | 4 |
| SECOND RATE (3,000 tons or over), 11 built, 12 building. | = | 23 |
| THIRD RATE (1,000 tons or over), 30 built, 6 building.. | = | 36 |
| FOURTH RATE (gunboats less than 1,000 tons) 6 built, 1 bldg. | = | 7 |
| TORPEDO BOATS, 3 built, 1 building..... | = | 4 |
| TUGS, FREIGHT BOATS, etc, 12 built, 3 building..... | = | 15 |
| SAILING SHIPS, 6 built..... | = | 6 |
| RECEIVING SHIPS, 8 built | = | 8 |
| UNSERVICEABLE SHIPS, 8 built..... | = | 8 |

Grand Total..... 111

ALPHABETICAL LIST OF THE 1ST, 2D, 3D AND 4TH CLASS SHIPS.

| NAME. | CLASS. | TONS DIS- PLACE- MENT. | HORSE POWER. | PROPULSION. | GUNS. | CON- DITION. |
|------------------|--------|---------------------------------|-----------------|-------------|-------|------------------|
| Adams | 3 | 1,375 | 550 | Screw | .... | Wood. |
| Alert..... | 3 | 1,020 | 365 | Screw | 4 | Iron. |
| Alliance..... | 3 | 1,375 | 668 | Screw | 6 | Wood. |
| Amphytrite... .. | 2 | 3,990 | 1,600 | Twin screws | 6 | <i>Building.</i> |
| Atlanta | 2 | 3,189 | 4,030 | Screw | 8 | Steel. |
| Ajax | 3 | 2,100 | 340 | Screw | 2 | Iron. |
| Baltimore..... | 2 | 4,600 | 10,064 | Twin screws | 10 | Steel |
| Bennington..... | 2 | 1,700 | 3,436 | Twin screws | 6 | Steel |
| Boston..... | 2 | 3,189 | 4,030 | Screw | 8 | Steel. |
| Canonicus..... | 3 | 2,100 | 340 | Screw | 2 | Iron. |
| Catskill..... | 3 | 1,875 | 340 | Screw | 2 | Iron. |
| Charleston | 2 | 4,040 | 6,666 | Twin screws | 8 | Steel. |
| Chicago.. .. | 2 | 4,500 | 5,084 | Twin screws | 14 | Steel. |
| Cincinnati..... | 2 | 3,183 | 10,000 | Twin screws | 11 | <i>Building</i> |
| Comanche..... | 3 | 1,875 | 340 | Screw | 2 | Iron. |
| Concord..... | 3 | 1,700 | 3,405 | Twin screws | 6 | Steel. |
| Detroit..... | 3 | 2,000 | 5,400 | Twin screws | 10 | <i>Building</i> |
| Dolphin..... | 3 | 1,485 | 2,440 | Screw | 2 | Steel. |
| Enterprise | 3 | 1,375 | 790 | Screw | 6 | Wood. |
| Essex..... | 3 | 1,375 | 505 | Screw | 6 | Wood |
| Iroquois..... | 3 | 1,575 | 1,202 | Screw | 7 | Wood. |
| Indiana..... | 1 | 10,200 | 9,000 | Twin screws | 16 | <i>Building</i> |
| Jason | 3 | 1,875 | 340 | Screw | 2 | Iron. |
| Kearsarge..... | 3 | 1,550 | 843 | Screw | 7 | Wood |
| Lancaster..... | 2 | 3,250 | 7,333 | Screw | 10 | Wood. |
| Lehigh..... | 3 | 1,875 | 340 | Screw | 2 | Iron. |
| Machias..... | 3 | 1,050 | 1,600 | Twin screws | 8 | <i>Building</i> |
| Mahopac..... | 3 | 2,100 | 340 | Screw | 2 | Iron. |
| Maine..... | 2 | 6,648 | 9,000 | Twin screws | 10 | <i>Building.</i> |
| Manhattan | 3 | 2,100 | 340 | Screw | 2 | Iron. |
| Marion..... | 3 | 1,900 | 753 | Screw | 8 | Wood. |
| Massachusetts... | 1 | 10,200 | 9,000 | Twin screws | 16 | <i>Building.</i> |
| Miantonomoh.... | 2 | 3,990 | 1,426 | Twin screws | 4 | Iron. |
| Michigan..... | 4 | 685 | 305 | Paddle | 4 | Iron. |

UNITED STATES FLEET—ALPHABETICAL LIST—*Continued.*

| NAME. | CLASS. | TONS DIS- PLACE- MENT. | HORSE POWER. | PROPULSION. | GUNS. | CON- DITION. |
|--------------------|--------|---------------------------------|-----------------|----------------|-------|------------------|
| Mohican..... | 3 | 1,900 | 613 | Screw | 10 | Wood. |
| Monadnock..... | 2 | 3,990 | 3,000 | Twin screws | 6 | <i>Building.</i> |
| Montauk..... | 3 | 1,875 | 340 | Screw | 2 | Iron. |
| Monterey..... | 3 | 4,138 | 5,400 | Twin screws | 4 | <i>Building.</i> |
| Montgomery..... | 3 | 2,000 | 5,400 | Twin screws | 10 | <i>Building.</i> |
| Nahant..... | 3 | 1,875 | 340 | Screw | 2 | Iron. |
| Nantucket..... | 3 | 1,875 | 340 | Screw | 2 | Iron. |
| Newark..... | 2 | 4,083 | 8,869 | Twin screws | 12 | Steel. |
| New York..... | 2 | 8,150 | 1,6500 | Twin screws | 18 | <i>Building.</i> |
| No. 1..... | 3 | 2,183 | 4,800 | Twin screws | ... | <i>Building.</i> |
| No. 6..... | 3 | 1,050 | 1,600 | Twin screws | 10 | <i>Building.</i> |
| No. 6..... | 2 | 5,500 | 13,500 | Twin screws | 14 | <i>Building.</i> |
| No. 11..... | 3 | 2,000 | 5,400 | Twin screws | 10 | <i>Building.</i> |
| No. 12..... | 2 | 7,350 | 21,000 | Tripple scre's | 11 | <i>Building.</i> |
| No. 13..... | 2 | 7,350 | 21,000 | Tripple scre's | 11 | <i>Building.</i> |
| Oregon..... | 1 | 10,200 | 9,000 | Twin screws | 16 | <i>Building.</i> |
| Palos..... | 4 | 420 | 246 | Screw | 6 | Iron. |
| Passaic..... | 3 | 1,875 | 340 | Screw | 2 | Iron. |
| Pensacola..... | 2 | 3,000 | 680 | Screw | 18 | Wood. |
| Petrel..... | 4 | 890 | 1,513 | Screw | 1 | Steel. |
| Philadelphia..... | 2 | 4,324 | 8,815 | Twin screws | 12 | Steel. |
| Pinta..... | 4 | 550 | 190 | Screw | 4 | Iron. |
| Puritan..... | 2 | 6,000 | 3,700 | Twin screws | 10 | Iron. |
| Raleigh..... | 2 | 3,183 | 10,000 | Twin screws | ... | <i>Building.</i> |
| Ranger..... | 3 | 1,020 | 365 | Screw | ... | Iron. |
| Richmond..... | 3 | 2,700 | 960 | Screw | 14 | Wood. |
| San Francisco..... | 2 | 4,083 | 10,400 | Twin screws | 12 | Steel. |
| Terror..... | 2 | 3,990 | 1,600 | Twin screws | 4 | <i>Building.</i> |
| Texas..... | 1 | 6,300 | 8,600 | Twin screws | 8 | <i>Building.</i> |
| Thetis..... | 3 | 1,250 | 490 | Screw | ... | Wood. |
| Vesuvius..... | 4 | 930 | 3,795 | Twin screws | 3 | Steel. |
| Yantic..... | 4 | 900 | 225 | Screw | 4 | Wood. |
| Yorktown..... | 3 | 1,700 | 3,660 | Twin screws | 6 | Steel. |

Stations.

NORTH ATLANTIC.—Philadelphia (Flag ship); Miantonomoh; Concord; Kearsarge; Vesuvius.

PACIFIC.—San Francisco (Flag ship); Pensacola; Charleston; Boston; Baltimore; Mohican; Iroquois; Yorktown.

ASIATIC.—Lancaster (Flag ship); Marion; Alliance; Monocacy; Alert; Petrel; Palos.

SOUTH ATLANTIC.—Chicago; Atlanta; Bennington; Essex; Yantic.

APPRENTICE TRAINING SHIPS.—Monongahela; Portsmouth; Jamestown.

Navy Yards.

Portsmouth, N. H.; Boston, Mass.; Newport, R. I.; New London, Conn.; League Island; Washington, D. C.; Norfolk, Va.; Brooklyn, N. Y.; Pensacola, Fla.; Mare Island, Cal.

QUALIFICATIONS FOR VOTING IN EACH STATE OF THE UNION.

| STATES. | VOTERS MUST BE MALES, 21 YEARS OLD, AND | PREVIOUS RESIDENCE REQUIRED. | | |
|--------------------|---|------------------------------|------------|------------|
| | | State. | County. | Precinct. |
| Alabama..... | Citizens or have declared intentions. | 1 year... | 3 months | 1 month. |
| Arkansas..... | Citizens or have declared intentions. | 1 year... | 6 months | 1 month. |
| California..... | Actual citizens. | 1 year... | 90 days... | 30 days... |
| Colorado..... | Citizens or have declared intentions. | 6 months | ..... | ..... |
| Connecticut..... | Actual citizens | 1 year... | 6 months | 6 months |
| Delaware..... | Actual county tax-payers. | 1 year... | 1 month. | ..... |
| Florida..... | United States citizens or have declared intentions. | 1 year... | 6 months | ..... |
| Georgia..... | Actual citizens | 1 year... | 6 months | ..... |
| Idaho..... | Citizens or have declared intentions | 6 months | 30 days | ..... |
| Illinois..... | Actual citizens | 1 year... | 90 days... | 30 days... |
| Indiana..... | Citizens or have declared intentions. | 6 months | 60 days... | 30 days... |
| Iowa..... | Actual citizens | 6 months | 60 days... | 30 days... |
| Kansas..... | Citizens or have declared intentions. | 6 months | ..... | ..... |
| Kentucky..... | Free white male citizens. | 2 years... | 2 years... | 60 days... |
| Louisiana..... | Citizens or have declared intentions. | 1 year... | 6 months | 30 days... |
| Maine..... | Actual citizens | 3 months | ..... | ..... |
| Maryland..... | Actual citizens | 1 year... | 6 months | ..... |
| Massachusetts..... | Citizens | 1 year... | ..... | 6 months |
| Michigan..... | Citizens or have declared intentions. | 3 months | ..... | 10 days... |
| Minnesota..... | Citizens or have declared intentions. | 4 months | ..... | 10 days... |
| Mississippi..... | Actual citizens. | 6 months | 1 month. | ..... |
| Missouri..... | Citizens or have declared intentions. | 1 year... | 60 days... | ..... |
| Montana..... | Citizens of the United States. | 1 year... | 30 days | 30 days... |
| Nebraska..... | Citizens or have declared intentions. | 6 months | ..... | ..... |
| Nevada..... | Citizens or have declared intentions. | 6 months | 30 days... | ..... |
| New Hampshire..... | Actual citizens | ..... | ..... | Town 6 m. |
| New Jersey..... | Actual citizens | 1 year... | 5 months | ..... |
| New York..... | Actual citizens. | 1 year... | 4 months | 30 days... |

QUALIFICATIONS FOR VOTING. ETC.—CONTINUED.

| STATES. | VOTERS MUST BE MALES, 21 YEARS OLD, AND | PREVIOUS RESIDENCE REQUIRED. | | |
|---------------------|--|------------------------------|---------------|----------------|
| | | State. | County. | Precinct. |
| North Carolina..... | Actual citizens..... | 12 months..... | 90 days..... | ..... |
| North Dakota..... | Citizens or have declared intentions..... | 1 year..... | 6 months..... | 90 days..... |
| Ohio..... | Actual citizens..... | 1 year..... | ..... | ..... |
| Oregon..... | Citizens or have declared intentions..... | 6 months..... | ..... | ..... |
| Pennsylvania..... | Actual citizens..... | 1 year..... | ..... | 2 months..... |
| Rhode Island..... | Actual tax-paying citizens..... | 1 year..... | ..... | Town 6 m. |
| South Carolina..... | Actual citizens..... | 1 year..... | 60 days..... | ..... |
| South Dakota..... | Citizens or have declared intentions..... | 6 months..... | 6 months..... | 30 days..... |
| Tennessee..... | Actual citizens..... | 12 months..... | 6 months..... | ..... |
| Texas..... | Citizens or have declared intentions..... | 1 year..... | 6 months..... | 6 months..... |
| Vermont..... | Actual citizens..... | 1 year..... | ..... | ..... |
| Virginia..... | Actual citizens..... | 12 months..... | ..... | Town 3 m. |
| Washington..... | Citizens of the United States..... | 1 year..... | 90 days..... | 30 days..... |
| West Virginia..... | Actual citizens..... | 1 year..... | 60 days..... | ..... |
| Wisconsin..... | Citizens or have declared intentions..... | 1 year..... | ..... | ..... |
| Wyoming..... | Citizens or have declared intentions..... | 6 months..... | 30 days..... | ..... |

Women are entitled to full suffrage in Utah and Wyoming Territories. Twenty-nine States and Territories—a majority of the Union—have given women some form of suffrage (school, municipal, etc.)

REGISTRATION.—In California, Connecticut, Illinois, Iowa, Maine, Massachusetts, Michigan, Minnesota, Nebraska, New Hampshire, Rhode Island, Vermont, Virginia and Wisconsin registration is required by law. In Colorado, Florida, Maryland, Mississippi, Nevada, North Carolina, Pennsylvania and South Carolina registration is a constitutional requirement. In Kansas and Missouri registration is required in cities only, in Ohio in the cities of Cincinnati and Cleveland only, and in New York and New Jersey in cities of 10,000 inhabitants and upward. In Alabama, Delaware, Georgia, Indiana, Kentucky, Louisiana and Tennessee no registration is required; and in Arkansas, Texas, and West Virginia it is prohibited by the State Constitution.

INTEREST LAWS AND STATUTES OF LIMITATIONS.

| STATES AND TERRITORIES. | INTEREST LAWS. | | STATUTES OF LIMITATIONS. | | |
|-------------------------|------------------------------|---|--------------------------|---------------|-----------------------|
| | Legal Rate. <i>per ct</i> | Rate Allowed by Contract. <i>per ct.</i> | Judgments, Years. | Notes, Years. | Open Accounts, Years. |
| Alabama..... | 8 | 8 | 20 | 6 | 3 |
| Arkansas..... | 6 | 10 | 10 | 5 | 3 |
| Arizona..... | 10 | Any rate. | 2 | 3 | 2 |
| California..... | 7 | Any rate. | 5 | 4 | 2 |
| Colorado..... | 10 | Any rate. | 6 | 6 | 6 |
| Connecticut..... | 6 | 6 | 17 | 17 | 6 |
| Delaware..... | 6 | 6 | 21 | 6 | 3 |
| District of Columbia... | 6 | 10 | 12 | 3 | 3 |
| Florida..... | 8 | Any rate. | 20 | 5 | 3 |
| Georgia..... | 7 | 8 | 7 | 7 | 4 |
| Idaho..... | 10 | 18 | 6 | 5 | 4 |
| Illinois..... | 6 | 8 | 7 | 20 | 5 |
| Indiana..... | 6 | 8 | 20 | 10 | 6 |
| Iowa..... | 6 | 10 | 20 | 10 | 5 |
| Kansas..... | 7 | 12 | 5 | 5 | 3 |
| Kentucky..... | 6 | 10 | 15 | 15 | 2 |
| Louisiana..... | 5 | 8 | 10 | 5 | 3 |
| Maine..... | 6 | Any rate. | 20 | 6 | 6 |
| Maryland..... | 6 | 6 | 12 | 3 | 3 |
| Massachusetts..... | 6 | Any rate. | 20 | 6 | 6 |
| Michigan..... | 7 | 10 | 6 | 6 | 2 |
| Minnesota..... | 7 | 10 | 10 | 6 | 6 |
| Mississippi..... | 6 | 10 | 7 | 6 | 3 |
| Missouri..... | 6 | 10 | 5 | 10 | 5 |
| Montana..... | 10 | Any rate. | 6 | 6 | 2 |
| Nebraska..... | 7 | 10 | 5 | 5 | 5 |
| Nevada..... | 10 | Any rate. | 6 | 6 | 4 |
| New Hampshire..... | 6 | 6 | 20 | 6 | 6 |
| New Jersey..... | 6 | 6 | 20 | 6 | 6 |
| New Mexico..... | 6 | 12 | 15 | 6 | 4 |
| New York *..... | 6 | 6 | 20 | 6 | 6 |
| North Carolina..... | 6 | 8 | 10 | 3 | 3 |
| North Dakota..... | 7 | 10 | 20 | 6 | 6 |
| Ohio..... | 6 | 8 | 5 | 15 | 6 |
| Oklahoma..... | 7 | 12 | ..... | ..... | ..... |
| Oregon..... | 8 | 10 | 10 | 6 | 1 |
| Pennsylvania..... | 6 | 6 | 5 | 6 | 6 |
| Rhode Island..... | 6 | Any rate. | 20 | 6 | 6 |
| South Carolina..... | 7 | Any rate. | 10 | 6 | 6 |
| South Dakota..... | 7 | 12 | 20 | 6 | 6 |
| Tennessee..... | 6 | 10 | 10 | 6 | 6 |
| Texas..... | 8 | 12 | 15 | 4 | 2 |
| Utah..... | 10 | Any rate. | 5 | 4 | 2 |
| Vermont..... | 6 | 6 | 8 | 6 | 6 |
| Virginia..... | 6 | 8 | 10 | 5 | 2 |
| Washington..... | 10 | Any rate. | 6 | 6 | 3 |
| West Virginia..... | 6 | 6 | 10 | 10 | 3 |
| Wisconsin..... | 7 | 10 | 20 | 6 | 6 |
| Wyoming..... | 12 | Any rate. | 5 | 5 | 4 |

* New York has, by a recent law, legalized any rate of interest on call loans of \$5,000 or upward, on collateral security.

PHOTOGRAPHING UNDER WATER.

It is quite possible to take photographs under water. In 1883 a submarine observatory was constructed by Sig. Toselti, at Naples, enabling visitors to see the bottom of the sea. It was a steel chamber, with plate-glass floors, and a collapsing float to sink it to different depths. It carried eight persons, and was illuminated inside by electric light, while telephones communicated with the shore. It was of course quite possible to take photographs inside it beneath the water.

Photographing under water has actually been carried out. Experiments were made in 1889 in the Mediterranean to ascertain how far daylight penetrated under water. In very clear water, near Corsica, and 18 miles from land, the limit of daylight was found, by means of photographic plates, to be 1,580 feet.

Value of Merchandise and of Gold and Silver Coin and Bullion imported into and exported from the United States from 1870 to 1888, inclusive; also annual excess of imports or of exports—specie values.

| Year ending June 30. | Total exports. | Imports. | Excess of exports over imports. | Excess of imports over exports. |
|----------------------|----------------|---------------|---------------------------------|---------------------------------|
| 1870 | \$450,927,434 | \$462,377,587 | ..... | \$ 11,450,153 |
| 1871 | 541,262,166 | 541,493,708 | ..... | 231,542 |
| 1872 | 524,055,120 | 640,338,766 | ..... | 116,283,646 |
| 1873 | 607,088,490 | 663,617,147 | ..... | 56,528,651 |
| 1874 | 652,913,445 | 595,861,248 | \$ 57,052,197 | ..... |
| 1875 | 605,574,853 | 553,906,153 | 91,668,700 | ..... |
| 1876 | 596,890,973 | 476,677,871 | 120,213,102 | ..... |
| 1877 | 658,637,457 | 492,097,540 | 166,539,917 | ..... |
| 1878 | 728,605,891 | 466,872,846 | 261,733,045 | ..... |
| 1879 | 735,436,882 | 466,073,775 | 269,363,107 | ..... |
| 1880 ... | 852,781,577 | 760,989,056 | 91,792,521 | ..... |
| 1881 | 921,784,193 | 753,240,125 | 168,544,068 | ..... |
| 1882 | 799,959,736 | 767,111,964 | 32,847,772 | ..... |
| 1883 | 855,659,735 | 751,670,305 | 103,989,430 | ..... |
| 1884 | 807,646,992 | 705,123,955 | 102,523,037 | ..... |
| 1885 | 784,421,280 | 620,769,652 | 163,651,628 | ..... |
| 1886 | 751,988,240 | 674,029,792 | 77,958,448 | ..... |
| 1887 | 752,180,902 | 752,490,560 | ..... | 309,658 |
| 1888 | 742,368,822 | 783,217,799 | ..... | 40,848,977 |

UNITED STATES CUSTOM DUTIES.

(ABRIDGED.)

| | |
|--|--|
| Animals for breeding purposes..... | { free on Consular cer- |
| “ otherwise..... | tificates. |
| Ale, Porter and Beer, in bottles..... | 20 per cent. |
| “ “ “ in casks..... | 40 cts per gallon |
| Books, charts, new..... | 20 cents per gallon |
| “ “ for Colleges, Libraries, or printed more than 20 years, or in use abroad more than one year and not for sale..... | 25 per cent |
| Boots, Shoes, Leather..... | free |
| Bronze, manufactures of..... | 35 per cent |
| Carpets, Aubusson, Axminster, and all woven whole for room..... | 45 per cent |
| “ Brussels, Tapestry, printed on the warp, or otherwise..... | 60 cts per sq yd and 40 per cent |
| “ Brussels, figured or plain..... | 28 cts per sq yd and 40 per cent |
| “ Saxony, Wilton & Tarnay Vel- vet, wrought by the Jacquard ma- chine..... | 44 cts per sq yd and 40 per cent |
| “ Treble Ingrain, three ply, and Worsted China Venetian..... | 60 cts per sq yd and 40 per cent |
| “ Velvet, Patent or Tapestry, printed on the warp or otherwise..... | 19 cts per sq yd and 40 per cent |
| Carriages..... | 40 cts per sq yd and 40 per cent |
| China--Porcelain and Parian Ware, plain..... | 35 per cent |
| “ Gilded, ornamented or decorated..... | 55 per cent |
| Cigars, Cheroots, and Cigarettes..... | 60 per cent |
| Clocks..... | { \$4.50 per lb and 25 per cent |
| Clothing, wholly or in part wool..... | 45 per cent |
| “ Linen..... | 44 cts per lb and 50 per cent |
| “ Silk component..... | 40 per cent |
| “ All other descriptions..... | 50 per cent |
| Coal and Coke, bituminous..... | 35 per cent |
| Coral, cut or manufactured..... | 75 cts per ton |
| Cutlery, Table, etc..... | 25 per cent |
| “ Pen, Jack and Pocket Knives.. | { 10 cts to \$5 per doz and 30 per cent |
| Diamonds and other precious stones, set..... | 12 cts to \$2 per doz. and 50 per cent |
| “ Unset..... | 25 per cent |
| “ Set..... | 10 per cent |
| Engravings..... | 50 per cent |
| Furniture..... | 25 per cent |
| Furs, manufactured..... | 35 per cent |

| | |
|--|----------------------------------|
| Gilt and plated ware, etc..... | 35 per cent |
| Glass ware..... | 60 per cent |
| Gloves, Kid | 50 per cent |
| Gold and silver ware, etc..... | 45 per cent |
| Guns | 25 per cent |
| Hay..... | \$4 per ton |
| Household effects, in use abroad one year and not for sale..... | free |
| Instruments, professional and in use... | free |
| Iron, Pig and Scrap..... | $\frac{1}{10}$ cts per lb |
| Jewelry—Gold, Silver or imitation..... | 50 per cent |
| “ Jet and Imitation of..... | 25 per cent |
| Laces, Silk..... | 60 per cent |
| “ Silk and Cotton | 50 per cent |
| “ Thread..... | 25 per cent |
| Leather, manufactures of..... | 35 per cent |
| Linen—Table, Toweling, etc..... | 35 per cent |
| Machinery, brass or iron | 45 per cent |
| “ copper or steel..... | 45 per cent |
| Oils—Animal | 30 per cent |
| “ Castor | 80 cts per gallon. |
| “ Olive | 35 cts per gallon. |
| Paintings..... | 15 per cent |
| “ if work of an American artist. | free |
| “ Frames for ditto..... | 35 per cent |
| Photographs | 25 per cent |
| Pipes—Meerschau, Wood, and of all other material, except common clay | 70 per cent |
| Prints or Engravings..... | 25 per cent |
| Rubber Boots, Shoes, and other articles wholly of rubber (not fabrics).... | 30 per cent |
| “ Braces, Suspenders, Webbing, } etc., unless in part silk..... | 60 cts per lb and 60 per cent |
| “ Silk, Cotton, Worsted or Leather | 50 per cent |
| Saddles and Harness..... | 35 per cent |
| Shawls—Silk.. .. | 60 per cent |
| “ Camel's Hair or other wool..... | 35 cts per lb and 40 per cent |
| Silk—Dress and Piece..... | 50 per cent |
| Smokers' Articles..... | 70 per cent |
| Snuff..... | 50 cts per lb |
| Soap—Castile | 1 $\frac{1}{4}$ cts per lb |
| “ Fancy, Perfumed, Toilet and Windsor..... | 20 per cent |
| Statuary, Marble..... | 15 per cent |
| Stereoscopic views, on glass or paper.. | 60 per cent |
| Spirits—Brandy, Whisky, Gin, etc..... | \$2.50 per proof gallon |
| Umbrellas—Silk or Alpaca..... | 55 per cent |
| Velvet—Silk | \$3.50 per lb and 15 per cent |
| Velvet -Cotton or mostly cotton..... | \$1.50 per lb and 15 per cent |

| | | |
|---|-------------------|-------------------------|
| Watches | 25 per cent | |
| Wines—All <i>still</i> Wines, such as Sherry | 50 cts per gallon | |
| Claret, or Hock, in casks..... | \$1.60 per case | |
| Ditto, in bottles of 1 pint and less.... | 1.60 per case | } and 3 cts per bottle. |
| Ditto, in bottles of over 1 pint and less than 1 quart..... | 1.70 per doz | |
| All Champagnes and Sparkling Wines in bottles of $\frac{1}{2}$ pints or less..... | 2.00 per doz | |
| Ditto, in bottles of over $\frac{1}{2}$ pint and not more than 1 pint..... | 4.00 per doz | |
| Ditto, in bottles of over 1 pint and not more than 1 quart..... | 8.00 per doz | |
| Ditto, in bottles of over 1 quart (extra) | 2.50 per gallon | |

ARTICLES FREE OF DUTY.

- Actors' costumes and effects intended for personal use.
- Animals for breeding purposes.
- Antiquities not for sale.
- Articles and tools of trade.
- Art works of American artists.
- Bed feathers.
- Birds, land and water fowl.
- Books printed over 20 years.
- Books printed in other than the English language.
- Coal—anthracite.
- Cocoa.
- Coffee.
- Collections of antiquities, etc., for use in colleges, museums, incorporated societies, etc.
- Diamonds, rough.
- Effects of American citizens dying abroad, if accompanied by Consular certificate.
- Engravings (engraved over 20 years).
- Farina.
- Fertilizers.
- Fruits and nuts.
- Furs, undressed.
- Hides, raw.
- Household effects in use abroad over one year and not for sale.

India rubber.

Mineral waters, natural.

Mother of pearl, unmanufactured.

Natural history specimens (not for sale).

Newspapers.

Periodicals.

Personal effects when old and in use over a year.

Plants, trees and shrubs.

Rags, other than wool.

Rubber—crude.

Scientific instruments.

Skins—raw.

Tapioca.

Tea.

United States manufactures forwarded to foreign countries and returned.

Wax, Vegetable and Mineral.

A CHEAP SHORT DISTANCE TELEPHONE.

Here are practical and reliable directions for the construction of such a line; we let an experienced man talk:

"Purchase steel binder wire. Get two cigar boxes, take the lids off and cut a three-quarter hole in the bottom of each box; then get some stiff wire (I used steel ribs of an umbrella), cut into pieces a little longer than the box is wide. Wrap the telephone wire around these wires, one at each end. I planted one post every quarter of a mile. Oak makes the best post. Cut the posts with a fork on them. Bore a small hole through each prong and tie a string (leather is what I used) to the prongs of the forks; then let the telephone wire rest on the string fastened in the fork of the post. Select as solid a place as possible to put the boxes against. Plane off a board a little larger than the box, for the box to rest against. Bore a hole through this board according to the direction of the telephone line. Put the wire through the box and fasten the box up with little nails driven in at the side. Now put up the wire and don't stretch it too tight. Fasten up the other box in the same way. If you get it up so that it talks as nicely as the one I have you would not do without one. My telephone has been in use four years and has not cost me a cent since I put the wire up. It is one-fourth of a mile long. I keep poles with forks on them to set under the wire when sleet comes, to prevent the ice from breaking the wire down."

SIZES OF NEWSPAPER SHEETS.

We herewith present a Tabular Statement showing the different sizes of Newspaper Sheets, and the number of columns to each size:

| WIDTH OF COLUMN, 13 EMS PICA. | PAPER. | COLUMN RULES. |
|----------------------------------|--------|------------------|
| 5 Column Folio..... | 20x26 | 17½ inches. |
| 6 " " | 22x31 | 19¾ " |
| 6 " " (wide margin)..... | 22x32 | 19¾ " |
| 7 " " | 24x35 | 21¾ " |
| 7 " " (wide margin).... | 24x36 | 21¾ " |
| 8 " " | 26x40 | 23¾ " |
| 9 " " | 28x44 | 26 " |
| 4 " Quarto..... | 22x31 | 13¾ " |
| 4 " " (wide margin)..... | 22x32 | 13¾ " |
| 5 " " | 26x40 | 17¾ " |
| 6 " " | 30x44 | 19¾ " |
| 7 " " | 35x48 | 21¾ " |

SIZES OF FLAT PAPER.

| | | | |
|---------------------------|-------|----------------------|-------|
| Flat Foolscap..... | 13x16 | Double Demy..... | 16x42 |
| Cap..... | 14x17 | Imperial..... | 23x31 |
| Crown.... | 15x19 | Double Medium..... | 23x36 |
| Demy..... | 16x21 | Double Medium..... | 18x46 |
| Folio Post..... | 17x22 | Elephant..... | 23x28 |
| Medium..... | 18x23 | Colombier..... | 23x34 |
| Double Flat Foolscap..... | 16x26 | Atlas..... | 26x33 |
| Royal..... | 19x24 | Double Royal..... | 24x38 |
| Double Cap..... | 17x28 | Double Elephant..... | 27x40 |
| Super Royal..... | 20x28 | Antiquarian..... | 31x53 |
| Double Demy | 21x32 | | |

SUB-DIVISIONS OF THE UNITED STATES.

The United States comprise (January, 1893):

44 States.

5 Organized Territories.

1 Indian Territory (without territorial organization).

1 District (of Columbia).

2,333 Counties.

64,329 Post Offices, divided into:

123 " of the First Class.

612 " " Second Class.

2,207 " " Third Class.

61,387 " " Fourth Class (without salaries).

SALARIES OF UNITED STATES OFFICERS, PER ANNUM.

PRESIDENT, VICE-PRESIDENT AND CABINET.—President, \$50,000; Vice-President, \$8,000; Cabinet Officers, \$8,000 each.

UNITED STATES SENATORS.—\$5,000, with mileage.

CONGRESS.—Members of Congress, \$5,000, with mileage.

SUPREME COURT.—Chief Justice, \$10,500; Associate Justices, \$10,000.

CIRCUIT COURTS.—Justices of Circuit Courts, \$6,000.

HEADS OF DEPARTMENTS.—Supt. of Bureau of Engraving and Printing, \$4,500; Public Printer, \$4,500; Supt. of Census, \$6,000; Supt. of Naval Observatory, \$5,000; Supt. of the Signal Service, \$4,000; Director of Geological Surveys, \$6,000; Director of the Mint, \$4,500; Commissioner of General Land Office, \$4,000; Commissioner of Pensions, \$5,000; Commissioner of Labor, \$500; Commissioner of Indian Affairs, \$4,000; Commissioner of Education, \$3,000; Commander of Marine Corps, \$3,500; Supt. of Coast and Geodetic Survey, \$6,000.

UNITED STATES TREASURY.—Treasurer, \$6,000; Register of Treasury, \$4,000; Comptroller of Customs, \$4,000.

POST-OFFICE DEPARTMENT, Washington.—Four Assistant Postmaster-Generals, \$4,000; Chief Clerk, \$2,500.

POSTMASTERS.—Postmasters are divided into four classes. First class, \$3,000 to \$4,000 (excepting New York City, which is \$8,000); second class, \$2,000 to \$3,000; third class, \$1,000 to \$2,000; fourth class less than \$1,000. The first three classes are appointed by the President, and confirmed by the Senate; those of fourth class are appointed by the Postmaster-General.

DIPLOMATIC APPOINTMENTS.—*Ministers Plenipotentiary*, at \$17,500: France, Great Britain, Germany, Mexico and Russia; at \$12,000: Austria-Hungary, Brazil, China, Italy and Spain; at \$10,000: Argentine Republic, Guatemala, Chili, Nicaragua, Peru and Turkey; at \$7,500: Belgium, Denmark, Hawaii, Netherlands, Paraguay and Uruguay, Sweden and Norway, Venezuela; at \$5,000: Bolivia and Switzerland. *Ministers Resident* at \$7,500: Corea; at \$5,000: Hayti, Liberia, Persia, Portugal, Siam. Then four Consuls-Generals at \$6,000, three at \$5,000, six at \$4,000, and eight at \$3,500 to \$2,000; also 72 Consuls at \$1,000 up to \$3,500.

ARMY OFFICERS.—General, \$13,500; Lieut.-General, \$11,000; Major-General, \$7,500; Brigadier-General, \$5,500; Colonel, \$3,500; Lieut.-Colonel, \$3,000; Major, \$2,500; Captain, mounted, \$2,000; Captain, not mounted, \$1,800; Regimental Adjutant, \$1,800; Regimental Quartermaster, \$1,800; 1st Lieutenant, mounted, \$1,600; 1st Lieutenant, not mounted, \$1,500; 2d Lieutenant, mounted, \$1,500; 2d Lieutenant, not mounted, \$1,400; Chaplain, \$1,500.

NAVY OFFICERS.—Admiral, \$13,000; Vice-Admiral, \$9,000; Rear-Admirals, \$6,000; Commodores, \$5,000; Captains, \$4,500; Commanders, \$3,500; Lieut.-Commanders, \$2,800; Lieutenants, \$2,400; Masters, \$1,800; Ensigns, \$1,200; Midshipmen, \$1,000; Cadet Midshipmen, \$500; Mates, \$900; Medical and Pay Directors and Medical and Pay Inspectors and Chief Engineers, \$4,400; Fleet Surgeons, Fleet Paymasters, and Fleet Engineers, \$4,400; Surgeons and Paymasters, \$2,800; Chaplains, \$2,500.

POPULATION OF CITIES IN THE UNITED STATES.

CONTAINING 5,000 INHABITANTS AND OVER, WITH THEIR
POPULATION IN 1890, IN 1880 AND 1870.

CENSUS OF 1890.

| | 1890. | 1880. | 1870. |
|--------------------------|---------|---------|---------|
| Adams, Mass..... | 9,200 | 5,591 | 12,090 |
| Adrian, Mich..... | 3,756 | 7,849 | 8,438 |
| Akron, O..... | 27,601 | 16,512 | 10,006 |
| Alameda, Cal..... | 11,165 | 5,708 | 1,557 |
| Albany, N. Y..... | 94,923 | 90,758 | 69,422 |
| Albina, Ore..... | 5,129 | 143 | ..... |
| Alexandria, Va..... | 14,339 | 13,659 | 13,570 |
| Allegheny, Pa..... | 105,287 | 78,682 | 53,180 |
| Allentown, Pa..... | 25,228 | 18,063 | 13,884 |
| Alliance, O..... | 7,607 | 4,626 | ..... |
| Alpena, Mich..... | 11,283 | 6,153 | 2,612 |
| Alton, Ill..... | 10,294 | 8,975 | 8,665 |
| Altoona, Pa..... | 30,337 | 19,710 | 10,610 |
| Americus, Ga..... | 6,398 | 3,635 | 3,259 |
| Amesbury, Mass..... | 9,793 | 3,355 | 5,581 |
| Amsterdam, N. Y..... | 17,336 | 9,466 | 5,428 |
| Anderson, Ind..... | 10,741 | 4,126 | 3,126 |
| Andover, Mass..... | 6,142 | 5,169 | 4,873 |
| Annapolis, Md..... | 7,604 | 6,642 | 5,744 |
| Ann Arbor, Mich..... | 9,431 | 8,061 | 7,363 |
| Anniston, Ala..... | 9,998 | 942 | ..... |
| Ansonia, Conn..... | 10,342 | 7,892 | ..... |
| Appleton, Wls..... | 11,869 | 8,005 | 5,518 |
| Arkansas City, Kan..... | 8,347 | 1,012 | ..... |
| Arlington, Mass..... | 5,629 | 4,100 | 3,251 |
| Asheville, N. C..... | 10,235 | 2,616 | 1,400 |
| Ashland, Pa..... | 7,346 | 6,052 | 5,714 |
| Ashland, Wls..... | 9,956 | 900 | ..... |
| Ashtabula, O..... | 8,338 | 4,445 | 1,999 |
| Aspen, Colo..... | 5,108 | ..... | ..... |
| Astoria, Ore..... | 6,184 | 2,803 | 639 |
| Atchison, Kan..... | 13,963 | 15,105 | 7,054 |
| Athol, Mass..... | 6,319 | 4,307 | 3,511 |
| Athens, Ga..... | 8,639 | 6,099 | 4,251 |
| Atlanta, Ga..... | 65,533 | 37,409 | 21,798 |
| Atlantic City, N. J..... | 13,055 | 5,477 | 1,043 |
| Attleboro, Mass..... | 7,577 | 11,111 | 6,769 |
| Auburn, N. Y..... | 25,858 | 21,925 | 17,225 |
| Auburn, Me..... | 11,250 | 9,555 | 6,169 |
| Augusta, Ga..... | 33,300 | 21,891 | 15,389 |
| Augusta, Me..... | 10,527 | 8,665 | 7,808 |
| Aurora, Ill..... | 19,688 | 11,873 | 11,162 |
| Austin, Tex..... | 4,575 | 10,013 | 4,428 |
| Baltimore, Md..... | 434,439 | 332,312 | 267,354 |
| Bangor, Me..... | 19,103 | 16,856 | 8,289 |
| Barre, Vt..... | 6,391 | 6,333 | 5,760 |
| Batavia, N. Y..... | 7,221 | 4,845 | 3,890 |

| | | | |
|-------------------------|---------|---------|---------|
| Baton Rouge, La..... | 10,478 | 7,197 | 6,498 |
| Battle Creek, Mich..... | 13,197 | 7,063 | 5,838 |
| Bath, Me..... | 8,723 | 7,874 | 7,371 |
| Bay City, Mich..... | 27,839 | 20,693 | 7,064 |
| Bayonne, N. J..... | 19,033 | 9,372 | 3,034 |
| Beatrice, Neb..... | 13,836 | 2,447 | 624 |
| Beaver Falls, Pa..... | 9,735 | 5,104 | 1,120 |
| Belfast, Me..... | 5,294 | 5,308 | 5,278 |
| Beloit, Wis..... | 6,315 | 4,790 | 4,396 |
| Bellaire, O..... | 9,934 | 8,025 | 4,033 |
| Belleville, Ill..... | 15,361 | 10,683 | 8,146 |
| Bennington, Vt..... | 6,391 | 6,333 | 5,760 |
| Berkeley, Cal..... | 5,101 | ..... | ..... |
| Bethlehem, Pa..... | 6,762 | 5,193 | 4,512 |
| Beverly, Mass..... | 10,821 | 8,456 | 6,507 |
| Biddeford, Me..... | 14,443 | 12,651 | 10,282 |
| Big Rapids, Mich..... | 5,303 | 3,552 | ..... |
| Binghamton, N. Y..... | 35,005 | 17,317 | 12,692 |
| Birmingham, Ala..... | 26,178 | 400 | ..... |
| Blackstone, Mass..... | 6,138 | 4,907 | 5,421 |
| Bloomington, Ill..... | 20,484 | 17,180 | 14,500 |
| Boone, Iowa..... | 6,520 | 3,330 | ..... |
| Boston, Mass..... | 448,477 | 362,839 | 250,526 |
| Bowling Green, Ky..... | 7,803 | 5,114 | 4,574 |
| Braddock, Pa..... | 8,561 | 3,310 | ..... |
| Bradford, Pa..... | 10,514 | 9,197 | 1,446 |
| Brainerd, Minn..... | 5,703 | 1,865 | ..... |
| Brattleboro, Vt..... | 6,862 | 5,880 | 4,933 |
| Brazil, Ind..... | 5,905 | 3,441 | ..... |
| Brenham, Tex..... | 5,209 | 4,101 | 2,221 |
| Bridgeport, N. J..... | 11,424 | 8,722 | ..... |
| Bridgeport, Conn..... | 48,866 | 27,643 | 18,969 |
| Bristol, Conn..... | 7,382 | 5,347 | 3,788 |
| Bristol, Pa..... | 6,553 | 5,273 | 3,269 |
| Brockton, Mass..... | 27,294 | 13,608 | 8,007 |
| Brookline, Mass..... | 12,103 | 8,057 | ..... |
| Brooklyn, N. Y..... | 806,343 | 566,663 | 396,099 |
| Brownsville, Tex..... | 6,134 | 4,938 | 4,905 |
| Brunswick, Ga..... | 8,459 | 2,891 | 2,348 |
| Brunswick, Me..... | 6,012 | 5,384 | 4,687 |
| Bucyrus, O..... | 5,974 | 3,835 | ..... |
| Buffalo, N. Y..... | 255,664 | 155,134 | 117,714 |
| Burlington, Iowa..... | 22,565 | 19,450 | 14,930 |
| Burlington, N. J..... | 7,264 | 6,090 | 5,817 |
| Burlington, Vt..... | 14,590 | 11,365 | 14,387 |
| Burrellville, R. I..... | 15,494 | 5,714 | 4,674 |
| Butler, Pa..... | 8,734 | 3,163 | 984 |
| Butte City, Mont..... | 10,723 | 3,366 | 247 |
| Cairo, Ill..... | 10,234 | 9,011 | 6,261 |
| Calais, Me..... | 7,290 | 6,173 | 5,944 |
| Cambridge, Mass..... | 70,028 | 52,669 | 39,634 |
| Camden, N. J..... | 58,313 | 41,659 | 20,045 |
| Canandaigua, N. Y..... | 5,868 | 5,726 | 4,862 |
| Canton, O..... | 20,189 | 12,258 | 8,660 |
| Canton, Ill..... | 5,004 | 3,762 | ..... |
| Cape Elizabeth, Me..... | 5,459 | 5,302 | 5,100 |
| Carbondale, Pa..... | 10,833 | 7,714 | 6,393 |
| Carlisle, Pa..... | 7,620 | 6,209 | 6,650 |

| | | | |
|-----------------------------|-----------|---------|---------|
| Carthage, Mo..... | 7,981 | 4,167 | ..... |
| Cedar Rapids, Iowa..... | 18,126 | 10,104 | 5,940 |
| Chambersburg, Pa..... | 7,863 | 6,877 | 6,308 |
| Champaign, Ill..... | 5,839 | 5,108 | 4,625 |
| Charleston, S. C..... | 54,955 | 49,984 | 48,956 |
| Charlestown, W. Va..... | 6,742 | 4,192 | 1,593 |
| Charlotte, N. C..... | 11,557 | 7,094 | 4,473 |
| Charlottesville, Va..... | 5,591 | 2,676 | ..... |
| Chattanooga, Tenn..... | 29,100 | 12,892 | 6,093 |
| Cheybogan, Mich..... | 6,235 | 2,269 | ..... |
| Chelsea, Mass..... | 27,909 | 21,782 | 18,547 |
| Chester, Pa..... | 19,791 | 14,997 | 9,485 |
| Cheyenne, Wyo..... | 11,690 | 3,456 | 1,450 |
| Chicago, Ill..... | 1,099,850 | 503,185 | 298,977 |
| Chilcopee, Mass..... | 14,050 | 11,286 | 9,607 |
| Chillicothe, O..... | 11,288 | 10,938 | 8,920 |
| Chillicothe, Mo..... | 5,717 | 4,078 | 3,978 |
| Chippewa Falls, Wis..... | 8,670 | 3,982 | 2,507 |
| Cincinnati, O..... | 296,908 | 255,139 | 216,239 |
| Circleville, O..... | 6,856 | 6,046 | 5,407 |
| Claremont, N. H..... | 5,565 | 4,704 | 4,053 |
| Clarkesville, Tenn..... | 7,924 | 3,880 | 3,200 |
| Cleveland, O..... | 261,353 | 160,146 | 72,829 |
| Clinton, Iowa..... | 13,619 | 9,052 | 6,129 |
| Clinton, Mass..... | 10,424 | 8,029 | 5,429 |
| Cohoes, N. Y..... | 22,509 | 19,416 | 15,357 |
| Colchester, Vt..... | 5,143 | 4,421 | 3,911 |
| Coldwater, Mich..... | 5,247 | 4,681 | 4,381 |
| College Point, N. Y..... | 6,127 | 4,192 | 3,652 |
| Columbia, Pa..... | 10,599 | 8,312 | 6,461 |
| Columbia, S. C..... | 15,353 | 10,036 | 9,298 |
| Columbia, Tenn..... | 5,370 | 3,400 | ..... |
| Colorado Springs, Colo..... | 11,140 | 4,226 | 81 |
| Columbus, Ga..... | 17,303 | 10,123 | 7,401 |
| Columbus, Ind..... | 6,719 | 4,813 | 3,359 |
| Columbus, O..... | 88,150 | 51,647 | 31,274 |
| Concord, N. H..... | 17,004 | 13,843 | 12,241 |
| Connellsville, Pa..... | 5,629 | 3,609 | ..... |
| Conshohocken, Pa..... | 5,470 | 4,561 | 3,071 |
| Corning, N. Y..... | 8,550 | 4,802 | 4,018 |
| Corry, Pa..... | 5,677 | 5,277 | 6,809 |
| Corsicana, Tex..... | 6,285 | 3,373 | 80 |
| Cortlandt, N. Y..... | 8,590 | 4,802 | 4,018 |
| Council Bluffs, Iowa..... | 21,474 | 18,063 | 10,020 |
| Coventry, R. I..... | 5,068 | 4,519 | 4,349 |
| Covington, Ky..... | 37,371 | 29,720 | 24,505 |
| Cranston, R. I..... | 8,099 | 5,940 | 4,822 |
| Crawfordsville, Ind..... | 6,089 | 5,251 | 3,701 |
| Creston, Iowa..... | 7,200 | 5,081 | 411 |
| Cumberland, Md..... | 12,729 | 10,693 | 8,056 |
| Cumberland, R. I..... | 8,090 | 6,445 | 3,882 |
| Dallas, Tex..... | 38,067 | 10,358 | 13,314 |
| Danbury, Conn..... | 16,552 | 11,666 | 8,758 |
| Danville, Ill..... | 11,491 | 7,733 | 4,751 |
| Danville, Pa..... | 7,998 | 8,346 | 8,436 |
| Danville, Va..... | 10,305 | 7,733 | 3,463 |
| Danvers, Mass..... | 7,454 | 6,598 | 5,600 |
| Davenport, Iowa..... | 26,872 | 21,831 | 20,039 |

| | | | |
|--------------------------|---------|---------|--------|
| Dayton, O..... | 61,220 | 38,878 | 30,473 |
| Decatur, Ill..... | 16,841 | 9,547 | 7,161 |
| Dedham, Mass..... | 7,123 | 6,233 | 7,342 |
| Deering, Me..... | 5,353 | 4,324 | ..... |
| Defiance, O..... | 7,094 | 6,233 | 7,342 |
| Delaware, O..... | 8,224 | 6,894 | 5,641 |
| Denison, Tex..... | 10,958 | 3,975 | ..... |
| Denver, Colo..... | 106,713 | 35,629 | 4,759 |
| Des Moines, Iowa..... | 50,093 | 22,428 | 5,241 |
| Detroit, Mich..... | 205,876 | 116,340 | 79,577 |
| Dixon, Ill..... | 5,161 | 3,658 | ..... |
| Dover, N. H..... | 12,790 | 11,687 | 9,204 |
| Dubuque, Iowa..... | 30,311 | 22,254 | 18,434 |
| DuBois, Pa..... | 6,149 | 2,718 | ..... |
| Duluth, Minn..... | 33,115 | 5,415 | 3,137 |
| Dunkirk, N. Y..... | 9,416 | 7,248 | 5,231 |
| Dunmore, Pa..... | 8,315 | 5,151 | ..... |
| Durham, N. C..... | 5,485 | 2,041 | ..... |
| Easton, Pa..... | 14,481 | 11,924 | 10,937 |
| E. Liverpool, O..... | 10,956 | 5,568 | 2,105 |
| E. Portland, Ore..... | 10,532 | 2,934 | 830 |
| E. Providence, R. I..... | 8,422 | 5,066 | 2,668 |
| E. St. Louis, Ill..... | 15,169 | 9,185 | 5,644 |
| Eau Claire, Wis..... | 17,415 | 10,119 | 2,233 |
| Edgewater, N. Y..... | 14,265 | 8,044 | ..... |
| Elgin, Ill..... | 17,823 | 8,787 | 5,441 |
| Elizabeth, N. J..... | 37,764 | 28,229 | 20,832 |
| Elkhart, Ind..... | 11,360 | 6,953 | 3,265 |
| Elmira, N. Y..... | 30,893 | 20,541 | 15,863 |
| El Paso, Tex..... | 10,398 | 736 | 764 |
| Elmira, O..... | 5,611 | 4,777 | 3,038 |
| Emporia, Kan..... | 7,551 | 4,631 | 2,168 |
| Enfield, Conn..... | 7,199 | 3,500 | 6,322 |
| Erie, Pa..... | 40,634 | 27,737 | 19,646 |
| Escanaba, Mich..... | 6,808 | 3,026 | ..... |
| Evansville, Ind..... | 50,756 | 29,280 | 21,830 |
| Everett, Mass..... | 11,068 | 4,159 | 2,220 |
| Fall River, Mass..... | 74,398 | 48,961 | 26,766 |
| Fargo, N. D..... | 5,664 | 2,693 | ..... |
| Faribault, Minn..... | 6,520 | 5,415 | 3,045 |
| Findlay, O..... | 18,553 | 4,633 | 3,315 |
| Fitchburg, Mass..... | 22,037 | 12,429 | 11,260 |
| Flint, Mich..... | 9,803 | 8,409 | 5,386 |
| Florence, Ala..... | 6,012 | 1,359 | ..... |
| Flushing, N. Y..... | 8,436 | 6,683 | 6,223 |
| Fond du Lac, Wis..... | 12,024 | 13,094 | 12,764 |
| Fort Madison, Iowa..... | 7,901 | 4,679 | 4,011 |
| Fort Scott, Kan..... | 11,946 | 5,372 | 4,174 |
| Fort Smith, Ark..... | 11,311 | 3,099 | 2,227 |
| Fort Wayne, Ind..... | 35,392 | 26,880 | 17,718 |
| Fort Worth, Tex..... | 23,076 | 6,663 | ..... |
| Fostoria, O..... | 7,070 | 3,569 | ..... |
| Framingham, Mass..... | 9,239 | 6,235 | 4,968 |
| Frankfort, Ind..... | 5,919 | 2,803 | ..... |
| Frankfort, Ky..... | 7,892 | 6,958 | 5,396 |
| Franklin, Pa..... | 6,221 | 5,010 | 3,908 |
| Frederick, Md..... | 8,193 | 8,659 | 8,526 |
| Fresport, Ill..... | 10,180 | 8,516 | 7,889 |

| | | | |
|--------------------------|--------|--------|--------|
| Freeman, O..... | 7,141 | 8,446 | 5,455 |
| Freeman, Neb..... | 6,747 | 3,013 | 1,195 |
| Fresno, Cal..... | 10,818 | 1,112 | ..... |
| Gainesville, Tex..... | 6,524 | 2,067 | ..... |
| Galena, Ill..... | 5,635 | 6,541 | 7,019 |
| Galesburg, Ill..... | 15,264 | 11,437 | 10,158 |
| Gallion, O..... | 6,326 | 5,635 | 3,523 |
| Galveston, Tex..... | 29,084 | 22,248 | 13,818 |
| Gardiner, Me..... | 5,491 | 4,339 | 4,497 |
| Gardner, Mass..... | 8,424 | 4,588 | 3,333 |
| Geneva, N. Y..... | 7,557 | 5,878 | 5,521 |
| Glens Falls, N. Y..... | 9,509 | 4,900 | 4,500 |
| Gloucester, Mass..... | 24,651 | 19,329 | 15,389 |
| Gloucester, N. J..... | 6,564 | 5,347 | 3,682 |
| Gloversville, N. Y..... | 13,864 | 7,133 | 4,518 |
| Georgetown, D. C..... | 14,046 | 12,578 | 11,384 |
| Goshen, Ind..... | 6,033 | 4,123 | 3,133 |
| Grafton, Mass..... | 5,002 | 4,039 | 4,594 |
| Grand Rapids, Mich..... | 60,278 | 32,016 | 16,507 |
| Grand Haven, Mich..... | 5,023 | 4,862 | 3,147 |
| Grand Island, Neb..... | 7,536 | 2,963 | 1,057 |
| Green Bay, Wis..... | 9,069 | 7,464 | 4,666 |
| Greenbush, N. Y..... | 7,301 | 3,295 | ..... |
| Greenfield, Mass..... | 5,252 | 3,903 | ..... |
| Greenfield, S. C..... | 8,607 | 6,160 | 2,757 |
| Greenville, Miss..... | 6,658 | 2,191 | ..... |
| Greenville, O..... | 5,479 | 3,535 | ..... |
| Greenwich, Conn..... | 10,131 | 7,892 | 7,644 |
| Groton, Conn..... | 5,539 | 5,128 | 5,124 |
| Hackensack, N. J..... | 6,004 | 4,248 | 8,038 |
| Hagerstown, Md..... | 10,118 | 6,627 | 5,779 |
| Hamilton, O..... | 17,565 | 12,122 | 11,081 |
| Hammond, Ind..... | 5,428 | 699 | ..... |
| Hannibal, Mo..... | 12,857 | 11,074 | 10,125 |
| Harrisburg, Pa..... | 39,385 | 30,762 | 23,104 |
| Harrison, N. J..... | 8,338 | 6,898 | 4,129 |
| Hartford, Conn..... | 53,230 | 42,015 | 37,180 |
| Hastings, Neb..... | 13,584 | 2,817 | ..... |
| Haverhill, Mass..... | 27,412 | 18,472 | 13,052 |
| Haverstraw, N. Y..... | 5,170 | 3,506 | ..... |
| Hazleton, Pa..... | 11,872 | 6,935 | 4,317 |
| Helena, Mont..... | 13,834 | 3,624 | 3,106 |
| Helena, Ark..... | 5,189 | 3,652 | ..... |
| Henderson, Ky..... | 8,835 | 5,365 | 4,171 |
| Highlands, Colo..... | 5,161 | ..... | ..... |
| Hoboken, N. J..... | 43,648 | 30,999 | 20,297 |
| Holyoke, Mass..... | 35,637 | 21,915 | 10,733 |
| Homestead, Pa..... | 7,911 | 592 | ..... |
| Hoosick Falls, N. Y..... | 7,014 | 4,530 | ..... |
| Hopkinsville, Ky..... | 5,833 | 4,229 | 3,136 |
| Hornellsville, N. Y..... | 10,996 | 8,195 | 4,552 |
| Houston, Tex..... | 27,557 | 16,513 | 9,382 |
| Hot Springs, Ark..... | 8,086 | 3,554 | ..... |
| Hudson, N. Y..... | 9,970 | 8,670 | 8,615 |
| Huntingdon, Pa..... | 5,727 | 4,125 | 3,034 |
| Huntsville, Ala..... | 7,995 | 4,977 | 4,907 |
| Huntington, Ind..... | 7,328 | 3,863 | 2,925 |
| Huntington, W. Va..... | 10,108 | 3,174 | |

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|----------------------|---------|---------|--------|
| Hutchinson, Kan. | 8,682 | 1,538 | |
| Hyde Park, Mass. | 10,193 | 3,146 | 3,184 |
| Independence, Mo. | 6,380 | 3,146 | 3,184 |
| Indianapolis, Ind. | 105,436 | 75,056 | 48,224 |
| Iowa City, Iowa | 7,016 | 7,123 | 5,914 |
| Ironton, O. | 10,929 | 8,857 | 5,686 |
| Iron Mountain, Mich. | 5,599 | ..... | ..... |
| Ironwood, Mich. | 7,746 | ..... | ..... |
| Ishpeming, Mich. | 11,197 | 6,039 | 6,103 |
| Ithaca, N. Y. | 11,079 | 9,105 | 8,462 |
| Jackson, Mich. | 20,798 | 16,105 | 11,447 |
| Jackson, Tex. | 10,039 | 5,377 | 4,119 |
| Jackson, Miss. | 5,920 | 5,204 | 4,234 |
| Jacksonville, Fla. | 17,291 | 7,650 | 6,912 |
| Jacksonville, Ill. | 12,935 | 10,927 | 9,202 |
| Jamaica, N. Y. | 5,361 | 3,922 | ..... |
| Jamestown, N. Y. | 16,038 | 9,357 | 5,336 |
| Janesville, Wis. | 10,836 | 9,018 | 8,798 |
| Jeffersonville, Ind. | 10,666 | 9,357 | 7,254 |
| Jefferson City, Mo. | 6,742 | 5,271 | 4,420 |
| Jersey City, N. J. | 163,443 | 120,722 | 82,546 |
| Johnstown, R. I. | 9,778 | 5,765 | 4,192 |
| Johnstown, Pa. | 21,805 | 8,380 | 6,028 |
| Johnstown, N. Y. | 7,768 | 5,013 | 3,282 |
| Joliet, Ill. | 23,264 | 11,657 | 7,283 |
| Joplin, Mo. | 9,943 | 7,038 | ..... |
| Kalamazoo, Mich. | 17,853 | 8,057 | 9,181 |
| Kankakee, Ill. | 9,025 | 5,651 | 5,189 |
| Kansas City, Mo. | 132,716 | 55,785 | 32,260 |
| Kansas City, Kan. | 38,316 | 3,202 | ..... |
| Kearney, Neb. | 8,074 | 1,782 | ..... |
| Keene, N. H. | 7,446 | 6,784 | 5,971 |
| Kenosha, Wis. | 6,532 | 5,039 | 4,309 |
| Kenton, O. | 5,557 | 3,940 | ..... |
| Keokuk, Iowa | 14,101 | 12,117 | 12,766 |
| Key West, Fla. | 18,085 | 6,890 | 5,016 |
| Killingly, Conn. | 7,027 | 6,921 | 5,712 |
| Kingston, N. Y. | 21,261 | 18,344 | 6,315 |
| Kokomo, Ind. | 8,261 | 4,042 | 2,177 |
| Knoxville, Tenn. | 22,535 | 9,693 | 8,682 |
| Laconia, N. H. | 6,143 | 3,790 | ..... |
| LaCrosse, Wis. | 25,090 | 14,505 | 7,785 |
| La Fayette, Ind. | 16,243 | 14,860 | 13,506 |
| Lancaster, O. | 7,555 | 6,803 | 2,860 |
| Lancaster, Pa. | 32,011 | 25,769 | 20,233 |
| Lansing, Mich. | 13,492 | 8,319 | 5,241 |
| Lansingburg, N. Y. | 10,550 | 7,432 | 6,372 |
| La Porte, Ind. | 7,126 | 6,195 | 6,581 |
| Laramie, Wyo. | 6,388 | 2,696 | 828 |
| Laredo, Tex. | 11,319 | 3,521 | 2,046 |
| La Salle, Ill. | 9,855 | 7,847 | 5,200 |
| Lawrence, Mass. | 54,654 | 39,151 | 28,921 |
| Lawrence, Kan. | 9,997 | 8,510 | 8,320 |
| Leadville, Colo. | 10,384 | 14,820 | ..... |
| Leavenworth, Kan. | 19,768 | 16,546 | 17,873 |
| Lebanon, Pa. | 14,664 | 8,778 | 6,727 |
| Leominster, Mass. | 7,269 | 5,772 | 3,894 |
| Lewiston, Me. | 21,701 | 19,083 | 13,600 |

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|-----------------------------|---------|---------|---------|
| Lexington, Ky..... | 31,567 | 16,656 | 14,801 |
| Lima, O..... | 15,981 | 7,567 | 4,500 |
| Lincoln, Ill..... | 6,200 | 5,639 | |
| Lincoln, R. I..... | 20,355 | 13,765 | 7,899 |
| Little Falls, N. Y..... | 8,783 | 6,910 | 5,387 |
| Little Rock, Ark..... | 25,874 | 13,138 | 12,380 |
| Litchfield, Ill..... | 5,811 | 4,326 | 3,852 |
| Lock Haven, Pa..... | 7,358 | 5,845 | 6,986 |
| Lockport, N. Y..... | 16,038 | 13,522 | 12,425 |
| Logansport, Ind..... | 13,328 | 11,198 | 8,950 |
| Long Branch, N. J..... | 7,231 | 3,833 | ..... |
| Long Island City, N. Y..... | 30,506 | 17,129 | 3,867 |
| Los Angeles, Cal..... | 50,395 | 11,183 | 5,723 |
| Louisiana, Mo..... | 5,090 | 4,325 | 3,639 |
| Louisville, Ky..... | 161,129 | 123,758 | 100,752 |
| Lowell, Mass..... | 77,096 | 59,475 | 40,928 |
| Ludington, Mich..... | 7,517 | 4,190 | ..... |
| Lynchburg, Va..... | 19,709 | 15,959 | 6,825 |
| Lynn, Mass..... | 55,727 | 38,274 | 23,233 |
| Lyons, Iowa..... | 5,799 | 4,095 | 4,088 |
| Macon, Ga..... | 22,746 | 12,479 | 10,810 |
| Madison, Ind..... | 8,836 | 8,945 | 10,709 |
| Madison, Wis..... | 13,426 | 10,324 | 9,176 |
| Mahanoy, Pa..... | 11,288 | 7,181 | 5,533 |
| Milton, Mass..... | 23,031 | 12,017 | 7,367 |
| Manchester, N. H..... | 44,126 | 32,630 | 23,536 |
| Manchester, Va..... | 9,246 | 5,729 | 2,599 |
| Manchester, Conn..... | 8,222 | 6,462 | 4,223 |
| Manistee, Mich..... | 12,812 | 6,930 | 3,343 |
| Mankato, Minn..... | 8,838 | 5,550 | 3,482 |
| Mantiowoc, Wis..... | 7,710 | 6,367 | 5,168 |
| Mansfield, O..... | 13,473 | 9,859 | 8,029 |
| Marblehead, Mass..... | 8,202 | 7,467 | 7,703 |
| Marietta, O..... | 8,273 | 5,444 | 5,218 |
| Marion, Ind..... | 8,769 | 3,182 | 1,658 |
| Marion, O..... | 8,327 | 3,899 | 2,531 |
| Marinette, Wis..... | 11,523 | 2,750 | ..... |
| Marlboro, Mass..... | 13,805 | 10,127 | 8,474 |
| Marquette, Mich..... | 9,093 | 4,690 | 4,000 |
| Marshall, Tex..... | 7,207 | 5,624 | 1,920 |
| Marshalltown, Iowa..... | 8,914 | 6,240 | 3,218 |
| Martinsburg, W. Va..... | 7,226 | 0,335 | 4,863 |
| Martin's Ferry, O..... | 6,250 | 3,819 | ..... |
| Massillon, O..... | 10,092 | 6,836 | 5,185 |
| Mattoon, Ill..... | 6,833 | 5,737 | 4,967 |
| McKeesport, Pa..... | 20,741 | 8,212 | 2,523 |
| Maysville, Ky..... | 5,358 | 5,220 | 4,705 |
| Meadville, Pa..... | 9,520 | 8,860 | 7,103 |
| Medford, Mass..... | 11,079 | 7,573 | 5,717 |
| Melrose, Mass..... | 8,519 | 4,560 | 3,4 |
| Memphis, Tenn..... | 64,495 | 33,592 | 40, |
| Menominee, Mich..... | 10,630 | 3,288 | 1 |
| Menominee, Wis..... | 5,491 | 2,589 | ..... |
| Meriden, Conn..... | 21,652 | 15,540 | ..... |
| Meridian, Miss..... | 10,624 | 4,008 | ..... |
| Merrill, Wis..... | 6,809 | | |
| Michigan City, Ind..... | 10,776 | 7,366 | |
| Middletown, Conn..... | 9013 | 11,731 | |

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| Middletown, N. Y. | 11,977 | 8,494 | 6,049 |
| Middletown, Pa. | 5,080 | 3,351 | |
| Middletown, O. | 7,681 | 4,538 | 3,043 |
| Middleboro, Mass. | 6,065 | 5,237 | 4,637 |
| Milwaukee, Wis. | 204,268 | 115,587 | 71,440 |
| Millville, N. J. | 10,002 | 7,660 | 6,101 |
| Milford, Mass. | 8,780 | 9,310 | 9,890 |
| Milton, Pa. | 5,317 | 2,102 | ..... |
| Minneapolis, Minn. | 164,738 | 46,887 | 13,066 |
| Mobile, Ala. | 31,076 | 29,132 | 32,024 |
| Moberly, Mo. | 8,215 | 6,070 | 1,514 |
| Moline, Ill. | 12,000 | 7,800 | 4,163 |
| Monmouth, Ill. | 5,936 | 5,000 | 4,662 |
| Monroe, Mich. | 5,238 | 4,930 | 5,086 |
| Montague, Mass. | 6,296 | 4,875 | 2,224 |
| Montgomery, Ala. | 21,883 | 16,713 | 10,588 |
| Morristown, N. J. | 8,156 | 5,418 | 5,674 |
| Mt. Carmel, Pa. | 8,254 | 1,756 | 2,451 |
| Mt. Vernon, O. | 6,027 | 5,249 | 4,876 |
| Mt. Vernon, N. Y. | 10,830 | 4,586 | ..... |
| Muncie, Ind. | 11,345 | 5,219 | 2,992 |
| Muscatine, Iowa | 11,454 | 2,295 | 6,718 |
| Muskegon, Mich. | 22,702 | 11,262 | 6,002 |
| Nanticoke, Pa. | 10,044 | 3,884 | ..... |
| Natick, Mass. | 9,118 | 8,479 | 6,404 |
| Nashua, N. H. | 19,311 | 13,397 | 10,543 |
| Nashville, Tenn. | 76,168 | 43,350 | 25,865 |
| Natchez, Miss. | 10,101 | 7,058 | 9,057 |
| Naugatuck, Conn. | 6,218 | 4,274 | 2,830 |
| Nebraska City, Neb. | 11,494 | 4,183 | 6,050 |
| Neenah, Wis. | 5,083 | 4,202 | 2,655 |
| Negaunee, Mich. | 6,078 | 3,931 | 2,559 |
| Nevada, Mo. | 7,262 | 1,913 | ..... |
| Newark, N. J. | 181,830 | 136,508 | 105,059 |
| Newark, Ohio | 14,270 | 9,600 | 6,698 |
| New Albany, Ind. | 21,059 | 16,423 | 14,397 |
| New Bedford, Mass. | 40,733 | 26,845 | 21,320 |
| New Berne, N. C. | 7,843 | 6,443 | 5,849 |
| New Brighton, N. Y. | 16,423 | 12,679 | 7,495 |
| New Brighton, Pa. | 5,616 | 3,653 | ..... |
| New Britain, Conn. | 19,007 | 11,800 | 9,480 |
| New Brunswick, N. J. | 18,603 | 17,166 | 15,056 |
| Newburg, N. Y. | 23,807 | 18,049 | 17,014 |
| Newburyport, Mass. | 13,947 | 13,538 | 12,595 |
| New Castle, Pa. | 11,600 | 8,418 | 6,164 |
| New Haven, Conn. | 81,299 | 62,882 | 50,840 |
| New London, Conn. | 13,757 | 11,537 | 9,576 |
| New Orleans, La. | 240,039 | 216,090 | 191,418 |
| Newport, Ky. | 24,918 | 20,443 | 15,087 |
| Newport, R. I. | 19,457 | 15,693 | 12,251 |
| New Rochelle, N. Y. | 8,217 | ..... | ..... |
| Newton, Mass. | 21,379 | 16,995 | 12,825 |
| Newton, Kan. | 5,605 | 2,601 | ..... |
| New York, N. Y. | 1,515,301 | 1,206,299 | 942,292 |
| Niagara Falls, N. Y. | 5,502 | 3,320 | ..... |
| Norfolk, Va. | 34,871 | 21,966 | 19,229 |
| Norristown, Pa. | 19,791 | 13,063 | 10,753 |
| North Adams, Mass. | 16,074 | 10,191 | |

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| Northampton, Mass. | 14,990 | 12,172 | 10,169 |
| North Attleboro, Mass. | 6,727 | | |
| Norwalk, Conn. | 17,747 | 13,956 | 12,119 |
| Norwalk, O. | 7,195 | 5,704 | 4,493 |
| Norwich, Conn. | 16,156 | 15,112 | 16,653 |
| Norwich, N. Y. | 5,212 | ..... | ..... |
| Oakland, Cal. | 48,862 | 34,555 | 10,500 |
| Oconto, Wis. | 5,219 | 4,171 | 2,655 |
| Ogden, Utah. | 14,889 | 6,069 | 3,127 |
| Ogdensburg, N. Y. | 11,862 | 10,341 | 10,076 |
| Oil City, Pa. | 10,332 | 27,315 | 2,276 |
| Oldtown, Me. | 5,312 | 3,395 | ..... |
| Olean, N. Y. | 7,358 | 3,036 | ..... |
| Omaha, Neb. | 140,452 | 30,518 | 16,083 |
| Oneida, N. Y. | 6,083 | 3,934 | ..... |
| Oleonta, N. Y. | 6,272 | 1,711 | 1,061 |
| Orange, N. J. | 18,844 | 13,207 | 9,348 |
| Oshkosh, Wis. | 22,836 | 15,748 | 12,663 |
| Oskaloosa, Iowa. | 6,758 | 4,598 | 3,204 |
| Oswego, N. Y. | 21,842 | 21,116 | 20,910 |
| Ottawa, Ill. |,985 | 7,834 | 7,736 |
| Ottawa, Kan. | 6,243 | 4,032 | 2,941 |
| Ottumwa, Iowa. | 14,001 | 9,004 | 5,214 |
| Owensboro, Ky. | 9,837 | 6,231 | 3,437 |
| Owosso, Mich. | 6,564 | 2,501 | 2,065 |
| Paducah, Ky. | 12,797 | 8,036 | 6,866 |
| Palestine, Tex. | 5,838 | 2,997 | ..... |
| Palmer, Mass. | 6,520 | 5,504 | 3,631 |
| Pana, Ill. | 5,077 | 3,009 | ..... |
| Paris, Tex. | 8,254 | 3,980 | ..... |
| Parkersburg, W. Va. | 8,408 | 6,582 | 5,546 |
| Parsons, Kan. | 6,736 | 4,199 | ..... |
| Passaic, N. J. | 13,028 | 6,532 | ..... |
| Paterson, N. J. | 78,347 | 51,031 | 33,579 |
| Pawtucket, R. I. | 27,633 | 19,030 | 6,619 |
| Peabody, Mass. | 10,158 | 9,028 | 7,343 |
| Peekskill, N. Y. | 9,676 | 6,893 | 6,560 |
| Pekin, Ill. | 6,347 | 5,993 | 5,696 |
| Pensacola, Fla. | 11,750 | 6,845 | 3,347 |
| Peoria, Ill. | 41,024 | 29,259 | 22,849 |
| Perth Amboy, N. J. | 9,512 | 4,808 | 2,861 |
| Peru, Ill. | 5,550 | 4,632 | 3,650 |
| Peru, Ind. | 7,028 | 5,280 | 3,617 |
| Petersburg, Va. | 22,680 | 21,656 | 18,950 |
| Philadelphia, Pa. | 1,046,964 | 847,170 | 674,022 |
| Phillipsburg, N. J. | 8,644 | 7,181 | 5,932 |
| Phoenixville, Pa. | 8,514 | 6,682 | 5,292 |
| Pine Bluff, Ark. | 9,952 | 3,203 | 2,081 |
| Piqua, O. | 9,090 | 6,031 | 5,967 |
| Pittsburg, Pa. | 228,617 | 156,389 | 86,076 |
| Pittsburg, Kan. | 6,697 | 624 | ..... |
| Pittsfield, Mass. | 17,281 | 13,364 | 11,117 |
| Pittston, Pa. | 10,302 | 7,412 | 6,769 |
| Plainfield, N. J. | 11,267 | 8,125 | 5,995 |
| Plattsburg, N. Y. | 7,010 | 5,245 | 5,139 |
| Plattsmouth, Neb. | 8,392 | 4,175 | 1,944 |
| Plymouth, Mass. | 7,314 | 7,093 | 5,238 |
| Plymouth, Pa. | 9,344 | 6,065 | 2,684 |

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|---------------------------|---------|---------|---------|
| Pontiac, Mich..... | 6,200 | 4,509 | 4,867 |
| Portage, Wis..... | 5,143 | 4,346 | 3,945 |
| Port Chester, N. Y..... | 5,274 | 3,254 | |
| Port Huron, Mich..... | 13,543 | 8,883 | 5,973 |
| Port Jervis, N. Y..... | 9,327 | 8,678 | 6,377 |
| Portland, Me..... | 36,425 | 33,810 | 31,413 |
| Portland, Ore..... | 46,385 | 17,577 | 8,293 |
| Port Richmond, N. Y..... | 6,290 | 3,526 | ..... |
| Portsmouth, N. H..... | 9,827 | 9,690 | 9,211 |
| Portsmouth, O..... | 12,394 | 11,321 | 10,592 |
| Portsmouth, Va..... | 13,268 | 11,390 | 10,590 |
| Portstown, Pa..... | 13,285 | 5,305 | 4,125 |
| Portsville, Pa..... | 14,117 | 13,253 | 12,384 |
| Poughkeepsie, N. Y..... | 22,208 | 20,207 | 20,080 |
| Providence, R. I..... | 132,146 | 104,857 | 68,904 |
| Provo City, Utah..... | 5,159 | 3,432 | ..... |
| Pueblo, Colo..... | 24,558 | 3,217 | 606 |
| Putnam, Conn..... | 6,512 | 5,827 | 4,192 |
| Quincy, Mass..... | 16,723 | 10,570 | 7,442 |
| Quincy, Ill..... | 31,494 | 27,268 | 24,052 |
| Racine, Wis..... | 21,014 | 16,031 | 9,880 |
| Rahway, N. J..... | 7,105 | 6,455 | 6,258 |
| Raleigh, N. C..... | 12,678 | 9,265 | 7,790 |
| Reading, Pa..... | 58,061 | 43,278 | 33,930 |
| Red Wing, Minn..... | 6,294 | 5,876 | 4,260 |
| Revere, Mass..... | 5,663 | 2,263 | ..... |
| Richmond, Ind..... | 16,243 | 12,472 | 9,445 |
| Richmond, Va..... | 81,388 | 66,600 | 51,038 |
| Roanoke, Va..... | 16,159 | 669 | ..... |
| Rochester, N. Y..... | 133,896 | 89,366 | 62,386 |
| Rochester, N. H..... | 7,396 | 5,784 | 4,103 |
| Rochester, Minn..... | 5,321 | 5,103 | 3,953 |
| Rockford, Ill..... | 23,584 | 13,129 | 11,049 |
| Rock Island, Ill..... | 13,634 | 11,659 | 7,890 |
| Rockland, Me..... | 8,174 | 7,599 | 7,074 |
| Rockville, Conn..... | 7,772 | 5,902 | ..... |
| Rome, N. Y..... | 14,991 | 12,194 | 11,000 |
| Rome, Ga..... | 6,957 | 3,877 | 3,199 |
| Rutland, Va..... | 11,760 | 12,149 | 9,834 |
| Saco, Me..... | 6,075 | 6,389 | 5,755 |
| Sacramento, Cal..... | 56,336 | 51,420 | 16,283 |
| Saginaw, Mich..... | 46,322 | 10,525 | 7,460 |
| Salem, Mass..... | 30,801 | 27,563 | 24,117 |
| Salem, N. J..... | 5,516 | 5,056 | 4,555 |
| Salem, O..... | 5,780 | 4,041 | 3,700 |
| Salina, Kan..... | 6,149 | 3,111 | 918 |
| Salt Lake City, Utah..... | 44,843 | 20,768 | 12,854 |
| San Antonio, Tex..... | 37,573 | 20,550 | 12,256 |
| Sandusky, O..... | 18,471 | 15,838 | 13,000 |
| San Diego, Cal..... | 16,159 | 2,637 | 2,300 |
| San Francisco, Cal..... | 298,997 | 233,959 | 149,473 |
| San Jose, Cal..... | 18,000 | 12,567 | 9,089 |
| San Barbara, Cal..... | 5,864 | 3,460 | ..... |
| San Cruz, Cal..... | 5,596 | 3,898 | ..... |
| San Fe, N. M..... | 6,185 | 6,635 | 4,765 |
| San Rosa, Cal..... | 5,220 | 3,616 | |
| San Springs, N. Y..... | 11,975 | 8,421 | 7,516 |
| San Marle, Mich..... | 5,760 | 1,947 | |

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|--------------------------|---------|---------|---------|
| Savannah, Ga..... | 43,189 | 30,709 | 28,235 |
| Schenectady, N. Y..... | 19,902 | 13,655 | 11,026 |
| Scranton, Pa..... | 75,215 | 45,850 | 35,092 |
| Seattle, Wash..... | 42,837 | 3,533 | 1,107 |
| Sedalia, Mo..... | 14,068 | 9,561 | 4,560 |
| Selma, Ala..... | 7,622 | 7,529 | 6,484 |
| Seneca Falls, N. Y..... | 6,116 | 5,880 | 5,890 |
| Seymour, Ind..... | 5,337 | 4,250 | 2,372 |
| Schamokin, Pa..... | 14,403 | 8,184 | 2,282 |
| Sharon, Pa..... | 7,459 | 5,684 | 4,231 |
| Sheboygan, Wis..... | 16,359 | 7,314 | 5,310 |
| Shelbyville, Ind..... | 5,451 | 3,745 | ..... |
| Shenandoah, Pa..... | 15,944 | 10,147 | 2,951 |
| Sherman, Tex..... | 7,335 | 6,090 | 1,439 |
| Shreveport, Ind..... | 11,979 | 8,009 | 4,607 |
| Sing Sing, N. Y..... | 9,327 | 6,578 | 4,696 |
| Sioux City, Iowa..... | 37,806 | 7,366 | 3,401 |
| Sioux Falls, S. D..... | 10,177 | 2,163 | ..... |
| Skowhegan, Me..... | 5,068 | 3,860 | ..... |
| Somersworth, N. H..... | 6,206 | 5,586 | 4,504 |
| Somerville, Mass..... | 40,152 | 24,933 | 14,685 |
| South Bend, Ind..... | 21,819 | 13,280 | 7,206 |
| South Bethlehem, Pa..... | 10,302 | 4,925 | ..... |
| South Bridge, Mass..... | 7,655 | 6,461 | 5,208 |
| South Chester, Pa..... | 7,076 | 3,664 | ..... |
| South Easton, Pa..... | 5,616 | 4,534 | 3,167 |
| Southington, Conn..... | 5,501 | 5,411 | 4,314 |
| South Omaha, Neb..... | 8,062 | ..... | ..... |
| Spartanburg, S. C..... | 5,544 | 3,253 | ..... |
| Spencer, Mass..... | 8,747 | 7,466 | 3,952 |
| Spokane Falls, Wash..... | 19,822 | 350 | ..... |
| Springfield, Ill..... | 24,963 | 19,743 | 17,364 |
| Springfield, Mass..... | 44,179 | 33,340 | 26,703 |
| Springfield, Mo..... | 21,850 | 6,522 | 5,565 |
| Springfield, O..... | 31,895 | 20,730 | 12,652 |
| St. Albans, Vt..... | 7,771 | 7,193 | 7,014 |
| Stanford, Conn..... | 15,700 | 11,297 | 9,714 |
| Staunton, Va..... | 6,975 | 6,664 | 5,120 |
| St. Charles, Mo..... | 6,161 | 5,014 | 5,570 |
| St. Cloud, Minn..... | 7,686 | 2,462 | 2,161 |
| Stillton, Pa..... | 2,950 | 2,447 | ..... |
| Sterling, Ill..... | 5,824 | 5,087 | 3,998 |
| Steubenville, O..... | 13,394 | 12,093 | 8,107 |
| Stevens Point, Wis..... | 7,896 | 4,449 | 1,810 |
| Stillwater, Minn..... | 11,260 | 9,055 | 4,124 |
| St. Johnsbury, Vt..... | 6,391 | 6,333 | 4,665 |
| St. Louis, Mo..... | 451,770 | 350,518 | 310,864 |
| Stockton, Cal..... | 14,424 | 10,282 | 10,066 |
| Stoneham, Mass..... | 6,155 | 4,890 | 4,513 |
| Stonington, Conn..... | 7,184 | 7,355 | 6,313 |
| St. Paul, Minn..... | 133,166 | 41,473 | 20,030 |
| Streator, Ill..... | 11,414 | 5,157 | 1,486 |
| Sunbury, Pa..... | 5,930 | 4,077 | 3,131 |
| Superior, Wis..... | 11,983 | 655 | ..... |
| Syracuse, N. Y..... | 88,143 | 51,792 | 43,051 |
| Tacoma, Wash..... | 36,006 | 1,098 | 7 |
| Tamaqua, Pa..... | 6,054 | 5,730 | 5,900 |
| Tampa, Fla..... | 5,532 | 720 | ... |

| | | | |
|-----------------------------|---------|---------|---------|
| Taunton, Mass..... | 25,448 | 21,213 | 18,629 |
| Terre Haute, Ind..... | 30,217 | 26,042 | 16,103 |
| Thomasville, Ga..... | 5,514 | 2,555 | ..... |
| Thompson, Conn..... | 5,580 | 5,051 | 3,804 |
| Tiffin, O..... | 10,801 | 7,879 | 5,648 |
| Titusville, Pa..... | 8,073 | 9,046 | 8,039 |
| Tonawanda, N. Y..... | 7,145 | 3,864 | ..... |
| Topeka, Kan..... | 31,007 | 15,452 | 4,790 |
| Toledo, O..... | 81,434 | 50,137 | 31,584 |
| Trenton, N. J..... | 57,458 | 29,910 | 22,874 |
| Trenton, Mo..... | 5,039 | 3,312 | ..... |
| Trinidad, Colo..... | 5,523 | 2,226 | ..... |
| Troy, N. Y..... | 60,956 | 56,747 | 46,464 |
| Tu son Ariz..... | 5 150 | 7,007 | ..... |
| Union, N. J..... | 1,064 | 5,849 | 4,640 |
| Uniontown, Pa..... | 6 359 | 2,265 | 2,503 |
| Urbana, O..... | 6 510 | 6,252 | 4,276 |
| Utica, N. Y..... | 44,007 | 33,914 | 28,804 |
| Vallejo, Cal..... | 6,343 | 5,987 | ..... |
| Valparaiso, Ind..... | 5,090 | 4,461 | 2,765 |
| Van Wert, O..... | 5,512 | 4,079 | 2,665 |
| Vicksburg, Miss..... | 13,378 | 11,814 | 12,443 |
| Vincennes, Ind..... | 8,853 | 7,680 | 5,449 |
| Virginia City, Nev..... | 8,511 | 10,917 | 7,058 |
| Waco, Tex..... | 14,445 | 7,295 | 3,003 |
| Wakefield, Mass..... | 6,982 | 5,547 | 4,135 |
| Waltham, Mass..... | 18,707 | 11,712 | 9,065 |
| Ware, Mass..... | 7,329 | 4,817 | 4,259 |
| Warren, O..... | 5,973 | 4,428 | 3,457 |
| Washington, D. C..... | 188,932 | 147,293 | 109,199 |
| Washington, Ind..... | 6,064 | 4,323 | 2,901 |
| Washington, Pa..... | 7,063 | 4,292 | 3,571 |
| Washington, O..... | 5,742 | 3,798 | ..... |
| Waterbury, Conn..... | 28,646 | 17,806 | 10,326 |
| Waterloo, Iowa..... | 6,674 | 5,630 | 4,337 |
| Watertown, Mass..... | 7,073 | 5,426 | 4,326 |
| Watertown, N. Y..... | 14,725 | 10,697 | 9,330 |
| Watertown, Wis..... | 8,755 | 7,883 | 7,550 |
| Waterville, Me..... | 7,107 | 4,672 | 4,852 |
| Waukesha, Wis..... | 6,321 | 2,969 | ..... |
| Wausau, Wis..... | 9,253 | 4,277 | 1,349 |
| Webb City, Mo..... | 5,043 | 1,588 | ..... |
| Webster, Mass..... | 7,031 | 5,696 | 4,763 |
| Wellsville, O..... | 5,247 | 3,377 | ..... |
| West Bay City, Mich..... | 12,981 | 6,397 | ..... |
| Westborough, Mass..... | 5,195 | 3,601 | ..... |
| Westbrook, Me..... | 6,632 | 3,981 | ..... |
| West Chester, Pa..... | 8,028 | 7,046 | 5,630 |
| Westley, R. I..... | 6,513 | 6,104 | 4,109 |
| Westfield, Mass..... | 9,805 | 7,587 | 6,519 |
| West Springfield, Mass..... | 5,077 | 4,149 | 2,606 |
| West Troy, N. Y..... | 12,967 | 8,820 | 10,693 |
| Weymouth, Mass..... | 10,866 | 10,570 | 9,010 |
| Wheeling, W. Va..... | 34,552 | 30,737 | 19,280 |
| Whita, Kan..... | 23,853 | 4,911 | 689 |
| Wicks Barre, Pa..... | 37,718 | 23,399 | 10,174 |
| Windsport, Pa..... | 27,132 | 18,934 | 16,030 |
| Windsor, Conn..... | 8,648 | 6,608 | ..... |

| | | | |
|-----------------------|--------|--------|--------|
| Wilmington, Del..... | 61,431 | 42,478 | 30,841 |
| Wilmington, N. C..... | 20,076 | 17,350 | 13,446 |
| Winchester, Va..... | 5,196 | 4,958 | 4,477 |
| Winfield, Kan..... | 5,184 | 2,844 | ..... |
| Winona, Minn..... | 18,208 | 10,208 | 7,192 |
| Winston, N. C..... | 8,018 | 2,854 | 443 |
| Woburn, Mass..... | 13,499 | 10,931 | 8,560 |
| Woonsocket, R. I..... | 20,830 | 16,050 | 11,527 |
| Wooster, O..... | 5,901 | 5,840 | 5,419 |
| Worcester, Mass..... | 84,655 | 58,291 | 41,105 |
| Xenia, O..... | 7,301 | 7,026 | 6,377 |
| Yonkers, N. Y..... | 32,033 | 18,892 | 12,733 |
| York, Pa..... | 20,793 | 13,940 | 11,003 |
| Youngstown, O..... | 33,220 | 15,435 | 8,075 |
| Ypsilanti, Mich..... | 6,129 | 4,984 | 5,471 |
| Zanesville, O..... | 21,009 | 18,113 | 10,011 |

HOW TO PETRIFY WOOD.—Gum salt, rock alum, white vinegar, chalk and pebbles powder, of each an equal quantity. Mix well together. If, after the ebullition is over, you throw into this liquid any wood or porous substance, it will petrify it.

HOW TO CONSTRUCT AN ÆOLIAN HARP.—Make a box with the top, bottom and sides of thin wood, and the ends $1\frac{1}{2}$ inch beech, form it the same length as the width of the window in which it is to be placed. The box should be 3 or 4 inches deep, and 6 or 7 inches wide. In the top of the box, which acts as a sounding board, make 3 circular holes about two inches in diameter, and an equal distance apart. Glue across the sounding board, about $2\frac{1}{2}$ inches from each end, 2 pieces of hard wood $\frac{1}{4}$ inch thick and $\frac{1}{2}$ inch high, to serve as bridges. You must now procure from any musical instrument maker twelve steel pegs, similar to those of a piano-forte, and 12 small brass pins. Insert them in the following manner into the beech; first commence with a brass pin, then insert a steel peg, and so on, placing them alternately $\frac{1}{2}$ in. apart to the number of twelve. Now for the other end, which you must commence with a steel peg, exactly opposite the brass pin at the other end, then a brass pin, and so on, alternately, to the number of 12; by this arrangement you have a steel peg and a brass pin always opposite each other, which is done so that the pressure of the strings on the instrument shall be uniform. Now string the instrument with 12 first violin strings, making a loop at one end of each string, which put over the brass pins, and wind the other end round the opposite steel pegs. Tune them in unison, but do not draw them tight. To increase the current of air, a thin board be placed about two inches above the strings, supported at

and by 2 pieces of wood. Place the instrument in a partly opened window, and to increase the draft open the opposite door.

HOW SOUND TRAVELS.—In dry air at 82 deg. 1,142 ft. per second, or about 775 miles per hour; in water, 4,900 ft. per second; in iron, 17,500 ft.; in copper, 10,378 feet; and in wood from 12 to 16,000 ft. per second. In water, a bell heard at 45,000 ft., could be heard in the air out of the water but 656 ft. In a balloon the barking of dogs can be heard on the ground at an elevation of 4 miles. Divers on the wreck of the Hussar frigate, 100 ft. under water, at Hell Gate, near New York, heard the paddle wheels of distant steamers hours before they hove in sight. The report of a rifle on a still day may be heard at 5,300 yds.; a military band at 5,200 yds. The fire of the English on landing in Egypt was distinctly heard 130 miles. Dr. Jamieson says he heard, during calm weather; every word of a sermon at a distance of 2 miles.

WEIGHTS OF FAMOUS BELLS.—The bell of Notre Dame, Montreal, Que., weighs 28,560 lbs.; that of the City Hall, New York, 22,300 lbs.; of St. Paul's, London, 11,470; "Big Ben," Westminster, 30,350; "Great Tom," of Oxford, 18,000; St. Peter's, Rome, 18,607; Rouen, France, 40,000; St. Ivan's, Moscow, 127,830; one unhung at Moscow, 440,000, and one in China weighs 120,000 lbs.

HOW TO REPAIR CRACKED BELLS.—The discordant tones of a cracked bell being due to the jarring of the rugged, uneven edges of the crack against each other, the best remedy that can be applied is to cut a thin slit with a toothless saw driven at a very high velocity, say 3 or 4,000 revolutions per minute, in such a manner as to cut away the opposing edges of the fracture wherever they come in contact. This will restore the original tone of the bell.

HOW TO TEST QUALITY OF STEEL.—Good tool steel, with a white heat, will fall to pieces; with bright red heat will crumble under the hammer; with middling heat may be drawn to a needle-point.

To test hardening qualities, draw under a low heat to a gradually tapered square point and plunge into cold water; if broken point will scratch glass, the quality is good.

To test tenacity, a hardened piece will be driven into cast-iron by a hardened hammer—if poor, will be crumbled. Excellence will be in proportion to tenacity in hard state. Soft steel of good quality gives a curved line fracture and uniform gray texture. Tool steel should be dull silver color, uniform, entirely free from sparkling qualities.

Aquafortis, applied to the surface of steel, produces a black spot; on iron the metal remains clean. The slightest vein of iron or steel can be readily detected by this method.

HOW TO DESTROY THE EFFECTS OF ACID ON CLOTHES.—Dampen as soon as possible, after exposure to the acid, with spirits ammonia. It will destroy the effect immediately.

HOW TO WASH SILVERWARE.—Never use a particle of soap on your silverware, as it dulls the lustre, giving the article more the appearance of pewter than silver. When it wants cleaning, rub it

with a piece of soft leather and prepared chalk, the latter made into a kind of paste with pure water, for the reason that water not pure might contain gritty particles.

HOW TO CLEANSE BRUSHES.—The best method of cleansing watchmakers' and jewelers' brushes is to wash them out in a strong soda water. When the backs are wood, you must favor that part as much as possible; for being glued, the water may injure them.

HOW TO KEEP FRESH MEAT A WEEK OR TWO IN SUMMER.—Farmers or others living at a distance from butchers can keep fresh meat very nicely for a week or two, by putting it into sour milk, or buttermilk, placing it in a cool cellar. The bone or fat need not be removed. Rinse well when used.

HOW TO WRITE INSCRIPTIONS ON METALS.—Take $\frac{1}{2}$ lb. of nitric acid and 1 oz. of muriatic acid. Mix, shake well together, and it is ready for use. Cover the place you wish to mark with melted beeswax; when cold, write your inscription plainly in the wax clear to the metal with a sharp instrument; then apply the mixed acids with a feather, carefully filling each letter. Let it remain from 1 to 10 minutes, according to appearance desired; then throw on water, which stops the process and removes the wax.

RULES FOR ACCIDENTS ON WATER.—When upset in a boat or thrown into the water and unable to swim, draw the breath in well, keep the mouth tight shut; do not struggle and throw the arms up, but yield quietly to the water; hold the head well up, and stretch out the hands only below the water; to throw the hands or feet up will pitch the body below the water, hands or feet up will pitch the body head down, and cause the whole person to go immediately under water. Keep the head above, and everything else under water.

Every one should learn to swim; no animal, aquatic, fowl, or reptile, requires to be taught this, for they do it naturally. Few persons exist who have not some time or other seen a bullfrog perform his masterly movements in the water, and it would detract from no one's dignity to take a few lessons from him. In learning, the beginner might sustain himself by a plank, a block of wood, an attachment composed of cork, an inflated bladder, a flying kite, or a stout cord attached to a long rod held by an assistant on the land. Learn to swim, cost what it will.

TRICHINA is the term applied to a minute, slender and transparent worm, scarcely 1-20th of an inch in length, which has recently been discovered to exist naturally in the muscles of swine, and is frequently transferred to the human stomach when pork is used as food. Enough of these filthy parasites have been detected in half a pound of pork to engender 30,000,000 more, the females being very prolific, each giving birth to from 60 to 100 young, and dying soon after. The young thread-like worm at first ranges freely through the stomach and intestines, remaining for a short time within the lining membrane of the intestines, causing irritation, diarrhea, and sometimes death, if present in sufficient numbers. As they become stronger, they begin to penetrate the walls of the intestines in order to effect a lodgment in the voluntary muscles.

causing intense muscular pain and severe enduring cramps, and sometimes tetanic symptoms. After four weeks migration they encyst themselves permanently on the muscular fibre, and begin to secrete a delicate sac which gradually becomes calcareous. In this torpid state they remain during the person's lifetime.

THE RELATIVE RANK OF OUR LARGEST CITIES (Census of 1890).

In 1880 there was *but one* city, New York, which had a population in excess of a million. In 1890 there were *three*, New York, Chicago, and Philadelphia.

In 1870 there were but *fourteen* cities, each containing more than 100,000 inhabitants. In 1880 this number had increased to *twenty*, and in 1890 to *twenty-eight*.

The number and relative rank of cities having a population of 100,000 or more at the date of each of these censuses are set forth in the following table:

CITIES BY NAME.

| RANK. | 1890. | 1880. | 1870. |
|-------|-----------------------|----------------------|---------------------|
| 1.. | New York, N. Y. ... | New York, N. Y..... | New York, N. Y. |
| 2.. | Chicago, Ill. | Philadelphia, Pa.... | Philadelphia, Pa. |
| 3.. | Philadelphia, Pa.... | Brooklyn, N. Y..... | Brooklyn, N. Y. |
| 4.. | Brooklyn, N. Y..... | Chicago, Ill..... | St. Louis, Mo. |
| 5.. | St. Louis, Mo..... | Boston, Mass..... | Chicago, Ill. |
| 6.. | Boston, Mass..... | St. Louis, Mo..... | Baltimore, Md. |
| 7.. | Baltimore, Md..... | Baltimore, Md..... | Boston, Mass. |
| 8.. | San Francisco, Cal.. | Cincinnati, Ohio.... | Cincinnati, Ohio. |
| 9.. | Cincinnati, Ohio.... | San Francisco, Cal.. | New Orleans, La. |
| 10.. | Cleveland, Ohio.... | New Orleans, La.... | San Francisco, Cal. |
| 11.. | Buffalo, N. Y. | Cleveland, Ohio.... | Buffalo, N. Y. |
| 12.. | New Orleans, La. . | Pittsburg, Pa..... | Washington, D. C. |
| 13.. | Pittsburg, Pa..... | Buffalo, N. Y..... | Newark, N. J. |
| 14.. | Washington, D. C.. | Washington, D. C.. | Louisville, Ky. |
| 15.. | Detroit, Mich..... | Newark, N. J. | |
| 16.. | Milwaukee, Wis.... | Louisville, Ky. | |
| 17.. | Newark, N. J..... | Jersey City, N. J. | |
| 18.. | Minneapolis, Minn.. | Detroit, Mich. | |
| 19.. | Jersey City, N. J.... | Milwaukee, Wis. | |
| 20.. | Louisville, Ky..... | Providence, R. I. | |
| 21.. | Omaha, Neb. | | |
| 22.. | Rochester, N. Y. | | |
| 23.. | St. Paul, Minn. | | |
| 24.. | Kansas City, Mo. | | |
| 25.. | Providence, R. I. | | |
| 26.. | Denver, Colo. | | |
| 27.. | Indianapolis, Ind. | | |
| 28.. | Allegheny, Pa. | | |

THE NEW COPYRIGHT LAW.

PASSED MARCH 4, 1891.

The author, inventor, designer, or proprietor of any book, map, chart, dramatic or musical composition, engraving, cut, print, or photograph or negative thereof, or of a painting, drawing, chromo, statue, statuary, and of models or designs intended to be perfected as works of the fine arts, and the executors, administrators, or assigns of any such person shall, upon complying with the provisions of this chapter, have the sole liberty of printing, reprinting, publishing, completing, copying, executing, finishing, and vending the same; and in the case of dramatic composition, of publicly performing or representing it or causing it to be performed or represented by others; and authors or their assigns shall have exclusive right to dramatize and translate any of their works for which copyright shall have been obtained under the laws of the United States.

The author, inventor, or designer, if he be still living, or his widow or children, if he be dead, shall have the same exclusive right continued for the further term of fourteen years, upon recording the title of the work or description of the article so secured a second time, and complying with all other regulations in regard to original copyrights, within six months before the expiration of the first term; and such persons shall, within two months from the date of said renewal, cause a copy of the record thereof to be published in one or more newspapers printed in the United States, for the space of four weeks.

No person shall be entitled to a copyright unless he shall, on or before the day of publication in this or any foreign country, deliver at the office of the Librarian of Congress, or deposit in the mail within the United States, addressed to the Librarian of Congress, at Washington, District of Columbia, a printed copy of the title of the book, map, chart, dramatic or musical composition, engraving, cut, print, photograph, or chromo, or a description of the painting, drawing, statue, statuary, or a model or design for a work of the fine arts for which he desires a copyright, nor unless he shall also, not later than the day of the publication thereof in this or any foreign country, deliver at the office of the Librarian of Congress, at Washington, District of Columbia, or deposit in the mail within the United States, addressed to the Librarian of Congress, at Washington, District of Columbia, two copies of such copyright book, map, chart, dramatic or musical composition, engraving, chromo, cut, print or photograph, or in case of painting, drawing, statue, statuary, model, or design for a work of the fine arts, a photograph of the same: Provided, that

case of a book, photograph, chromo, or lithograph, the two copies of the same required to be delivered or deposited as above shall be printed from type set within the limits of the United States, or from plates made therefrom, or from negatives, or drawings on stone made within the limits of the United States, or from transfers made therefrom. During the existence of such copyright the importation into the United States of any book, chromo, lithograph, or photograph, so copyrighted, or any edition or editions thereof, or any plates of the same not made from type set, negatives or drawings on stone, made within the limits of the United States, shall be, and it is hereby prohibited, except in the cases specified in paragraphs 512 to 260 inclusive, in section 2 of the act entitled "An act to reduce the revenue and equalize the duties on imports and for other purposes," approved Oct. 1, 1890; and except in the case of persons purchasing for use and not for sale, who import, subject to the duty thereon, not more than two copies of such book at any one time, and except in the case of newspapers and magazines not containing, in whole or in part, matter copyrighted under the provisions of this act, unauthorized by the author, which are hereby exempted from prohibition of importation: Provided, nevertheless, that in the case of foreign languages, of which only translations in English are copyrighted, the prohibition of importation shall apply only to the translations of the same, and the importation of the books in the original language shall be permitted.

The Librarian of Congress shall receive from the persons to whom the services designated are rendered, the following fees:

First. For recording the title or description of any copyright book or article, fifty cents

Second. For every copy under seal of such record actually given to the person claiming the copyright, or his assigns, fifty cents.

Third. For recording and certifying any instrument of writing for the assignment of a copyright, one dollar.

Fourth. For every copy of an assignment, one dollar.

All fees so received shall be paid into the Treasury of the United States: Provided, that the charge for recording the title or description of any article entered for copyright, the production of a person not a citizen or resident of the United States, shall be one dollar, to be paid as above into the Treasury of the United States, to defray the expenses of lists of copyrighted articles as hereinafter provided for.

And it is hereby made the duty of the Librarian of Congress to furnish to the Secretary of the Treasury copies of the entries of all books and other articles wherein the copyright has

been completed by the deposit of two copies of such book printed from type set within the limits of the United States, in accordance with the provisions of this act and by the deposit of two copies of such other article made or produced in the United States; and the Secretary of the Treasury is hereby directed to prepare and print, at intervals of not more than a week, catalogues of such title entries for distribution to the collectors of customs of the United States and to the postmasters of all post-offices receiving foreign mails, and such weekly lists, as they are issued, shall be furnished to all parties desiring them, at a sum not exceeding five dollars per annum; and the Secretary and the Postmaster-General are hereby empowered and required to make and enforce such rules and regulations as shall prevent the importation into the United States, except upon the conditions above specified, of all articles prohibited by this act.

The proprietor of every copyright book or other article shall deliver at the office of the Librarian of Congress, or deposit in the mail, addressed to the Librarian of Congress, at Washington, District of Columbia, a copy of every subsequent edition wherein any substantial changes shall be made: Provided, however, that the alterations, revisions and additions made to books by foreign authors, heretofore published, of which new editions shall appear subsequently to the taking effect of this act, shall be held and deemed capable of being copyrighted as above provided for in this act, unless they form a part of the series in course of publication at the time this act shall take effect.

Section 4963. Every person who shall insert or impress such notice, or words of the same purport, in or upon any book, map, chart, dramatic or musical composition, print, cut, engraving, or photograph, or other article, for which he has not obtained a copyright, shall be liable to a penalty of one hundred dollars, recoverable one-half for the person who shall sue for such penalty and one-half to the use of the United States.

Every person who, after the recording of the title of any book and the depositing of two copies of such book, as provided by this act, shall, contrary to the provisions of this act, within the term limited, and without the consent of the proprietor of the copyright first obtained in writing, signed in presence of two or more witnesses, print, publish, dramatize, translate, or import, or knowing the same to be so printed, published, dramatized, translated, or imported, sell or expose to sale any copy of such book shall forfeit every copy thereof to such proprietor, and shall forfeit and pay such damages as may be recovered in a civil action by such proprietor in any court of competent jurisdiction.

If any person, after the recording of the title of any map

dramatic or musical composition, print, cut, engraving, or photograph, or chromo, or of the description of any painting, drawing, statue, statuary, or model or design intended to be perfected and executed as a work of the fine arts, as provided by this act, shall within the term limited, contrary to the provisions of this act, and without the consent of the proprietor of the copyright first obtained in writing, signed in presence of two or more witnesses, engrave, etch, work, copy, print, publish, dramatize, translate, or import, either in whole or in part, or by varying the main design with intent to evade the law, or, knowing the same to be so printed, published, dramatized, translated, or imported, shall sell or expose to sale any copy of such map or other article as aforesaid, he shall forfeit to the proprietor all the plates on which the same shall be copied, and every sheet thereof, either copied or printed, and shall further forfeit one dollar for every sheet of the same found in his possession, either printing, printed, copied, published, imported, or exposed for sale, and in case of a painting, statue, or statuary, he shall forfeit ten dollars for every copy of the same in his possession, or by him sold or exposed for sale: one-half thereof to the proprietor and the other half to the use of the United States.

Every person who shall print or publish any manuscript whatever without the consent of the author or proprietor first obtained, shall be liable to the author or proprietor for all damages occasioned by such injury.

Sec. 11. That for the purpose of this act each volume of a book in two or more volumes, when such volumes are published separately, and the first one shall not have been issued before this act shall take effect, and each number of a periodical, shall be considered an independent publication, subject to the form of copy-righting as above.

Sec. 12. That this act shall go into effect on the first day of July, anno Domini eighteen hundred and ninety-one.

Sec. 13. That this act shall only apply to a citizen or subject of a foreign state or nation when such foreign state or nation permits to citizens of the United States of America the benefit of copyright on substantially the same basis as its own citizens, or when such foreign state or nation is a party to an international agreement which provides for reciprocity in the granting of copyright, by the terms of which agreement the United States of America may, at its pleasure, become a party to such agreement. The existence of either of the conditions aforesaid shall be determined by the President of the United States by proclamation from time to time as the purposes of this act may require.

Roman money mentioned in the New Testament reduced to English and American standard:

| | £ | s. | d. | far. | \$ | cts. |
|-----------------------|---|----|----|------|-------|----------|
| A Mite..... | 0 | 0 | 0 | 0.75 | ..... | 0 00.343 |
| A Farthing, about.... | 0 | 0 | 0 | 1.50 | ..... | 0 00.687 |
| A Penny, or Denarius | 0 | 0 | 7 | 2. | ..... | 0 13.75 |
| A Pound, or Mina.... | 3 | 2 | 6 | 0. | ..... | 13 75. |

NOTE. — The above determinations of Scripture measures, weights, &c., are principally by the Rt. Rev. Richard, Bishop of Peterborough.

CUNTER'S CHAIN, LAND MEASUREMENT, &c.—7.92 inches constitute 1 link; 100 links 1 chain, 4 rods or poles, or 66 feet, and 80 chains 1 mile. A square chain is 16 square poles, and 10 square chains are 1 acre. Four rods are an acre, each containing 1,210 square yards, or 34,785 yards, or 94 yards 28 inches each side.

Forty poles of 30.25 square yards each is a rood, and a pole is $3\frac{1}{2}$ yards each way.

An acre is 4,840 square yards, or 69 yards 1 foot $8\frac{1}{2}$ inches each way; and 2 acres, or 9,680 square yds. are 98 yds. 1 ft. 2 ins. each way; and 3 acres are $120\frac{1}{2}$ yards each way. A square mile, or a U. S. section of land, is 640 acres, being 1,060 yards each way; half a mile, or 880 yds. each way, is 160 acres; a quarter of a mile, or 440 yds. each way, is a park or farm of 40 acres; and a furlong, or 220 yds. each way, is 10 acres.

Any length or breadth in yards which multiplied make 4,840 is an acre; any which makes 12.10 is a rood, and 30.25 is a pole.

An English acre is a square of nearly 70 yds. each way; a Scotch of $77\frac{1}{2}$ yds., and an Irish of $88\frac{1}{2}$ yds.

DYNAMIC POWER OF VARIOUS KINDS OF FOOD.—One lb. of oatmeal will furnish as much power as 2 lbs. of bread and more than 3 lbs. of lean veal. One lb. butter gives a working force equal to that of 9 lbs. of potatoes, 12 lbs. of milk and more than 5 lbs. of lean beef. One lb. of lump sugar is equal in force to 2 lbs. of ham, or 8 lbs. of cabbage. The habitual use of spirituous liquors is inimical to health, and inevitably tends to shorten life. A mechanic or laboring man of average size requires, according to Moleschott, 23 ozs. of dry, solid matter daily, one-fifth nitrogenous. Food, as usually prepared, contains 50 per cent. of water, which would increase the quantity to 46 ozs., or 3 lbs. 14 ozs., with at least an equal weight of water in addition daily. The same authority indicates as healthy proportions, of albuminous matter 4.587 ozs., fatty matter 2.964, carbo-hydrate 14.250, salts 1.058, total 22.859 ozs., for daily use. This quantity of food will vary greatly in the requirements of individuals engaged in sedentary employments, or of persons with weak constitutions or impaired digestion, as also whether employed in the open air or within doors, much also depending on the temperature. Preference should be given to the food which most readily yields the materials required by nature in the formation of the human frame. Beef contains about 4 lbs. of such minerals in every 100 lbs. Dried extract of beef contains 21 lbs. in each 100 lbs. Bread made from unbolted wheat flour is also very rich in such elements, much more so than superfine flour.

hence the common use of Graham bread for dyspepsia and other ailments. The analysis of Liebig, Johnston, and others give in 100 parts, the following proportions of nutritious elements, viz.: Indian corn 12.30, barley 14.00, wheat 14.06, oats 19.91. A fish diet is well adapted to sustain intellectual, or brain labor. What is required may be best known from the fact that a human body weighing 154 lbs. contains, on a rough estimate, of water 14 gals. (consisting of oxygen 111 lbs., of hydrogen 14 lbs.), carbon 21 lbs., nitrogen 3 lbs., 8 ozs., calcium 2 lbs., sodium $2\frac{1}{4}$ ozs., phosphorus $1\frac{3}{4}$ lbs., potassium $\frac{1}{2}$ oz., sulphur 2 ozs. 219 grs., fluorine 2 ozs., chlorine 2 oz. 47 grs., iron 100 grs., magnesium 12 grs., silicon 2 grs. After death, the human body is by gradual decay slowly resolved into these its component parts, which elements are again used in the complex and wonderful laboratory of nature, to vivify the countless forms of vegetable life. These in their turn fulfill their appointed law by yielding up their substance for the formation of other bodies. What a suggestive comment on mortal ambition to witness the present inhabitants of Egypt engaged in what they consider the lucrative commerce of quarrying out the bones of the ancient inhabitants from the catacombs where they have been entombed for thousands of years and transporting them by the ship-board to England in order to fertilize the crops which are destined to assist in forming the bone and sinew of the British nation!

PRACTICAL DIETETIC ECONOMIES.—The following table, compiled from various authorities, is eminently and practically useful, presenting as it does at a glance the available percentage of nutritive elements contained in the leading staples used as human food.

| | | | |
|----------------------|-----------------|-----------------------|----|
| Raw Cucumbers..... | 2 | Raw Beef..... | 26 |
| “ Melons..... | 3 | “ Grapes..... | 27 |
| Boiled Turnips..... | $4\frac{1}{2}$ | “ Plums..... | 29 |
| Milk..... | 7 | Broiled Mutton..... | 30 |
| Cabbage..... | $7\frac{1}{2}$ | Oatmeal Porridge..... | 75 |
| Currants..... | 10 | Rye Bread..... | 79 |
| Whipped Eggs..... | 13 | Boiled Beans..... | 87 |
| Beets..... | 14 | Boiled Rice..... | 88 |
| Apples..... | 16 | Barley Bread..... | 88 |
| Peaches..... | 20 | Wheat Bread..... | 90 |
| Boiled Codfish..... | 21 | Baked Corn Bread..... | 91 |
| Broiled Venison..... | 22 | Boiled Barley..... | 92 |
| Potatoes..... | $22\frac{1}{2}$ | Butter..... | 92 |
| Fried Veal..... | 24 | Boiled Peas..... | 93 |
| Roast Pork..... | 24 | Raw Oils..... | 95 |
| Roast Poultry..... | 26 | | |

The figures present a diversity, but the general results are fixed and invariable, presenting to the economist the relative amount of nutriment supplied by each kind of food. It will be seen that the most wholesome and nutritious articles, as oatmeal, flour, peas, beans, rice, crushed wheat, corn bread, etc., are vastly superior to beef in supplying effective ability to labor, besides being obtainable at about one-third the price of the latter. It will be seen that the nutriment

supplied by beef is 26 per cent., while the cereals yield from 75 to 95 per cent.; while there is no room for dispute as to the comparative healthiness of the different kinds of diet. The bounding circulation, good digestion and mental activity enjoyed by day, together with the sound sleep accorded by night, to the man who prefers plain to luxurious living, and vegetable to animal food, are certainly well worth striving for. If a fair percentage of wholesome ripe fruit be used with the above noted diet, its value and the enjoyment of using it will be greatly enhanced. After all that can be said, pro and con, touching a vegetable diet, certain are we that the average man who limits himself to a well-selected regimen of vegetable food will, accidents aside, go through life with a clear mind in a healthy body, will sleep sounder, and come nearer the allotted age of three-score and ten; have a better digestion, and have fewer headaches than the man who indulges in roast beef with the usual variations.

AGE AND GROWTH OF TREES.—An oak tree in 3 years grows 2 ft. 10½ ins. A larch 3 ft. 7½ ins., at 70 years it is full grown, and a tree of 79 years was 102 ft. high and 12 ft. girth, containing 253 cubic ft. Another of 80 years was 90 ft. and 17 ft. and 300 cubic feet. An elm tree in 3 years grows 8 ft. 3 in. A beech, 1 ft. 8 in. A poplar, 6 ft. A willow, 9 ft. 3 in. An elm is full grown in 150 years and it lives 500 or 600. Ash is full grown in 100 and oak in 200. The mahogany is full grown in 200 years to a vast size. A Polish oak 40 ft. round had 600 circles. An oak in Dorsetshire in 1755 was 68 ft. round, 2 near Cranborne Lodge are 38 ft. and 36 ft. There are yews from 10 to 20 ft. diam., whose age is from 1,000 to 2,000 years. A lime in the Crisons is 51 ft. round and about 600 years old. An elm in the Pays de Vaud is 18 ft. diam. and 360 years old. The African baobab is the patriarch of living organizations, one specimen by its circles is estimated at 5,700 years old by Adamson and Humboldt. The trunk is but 12 or 15 ft. to the branches, and often 75 ft. round. A cypress in Mexico is 120 ft. round and is estimated by De Candolle to be older than Adamson's baobab. The cypress of Montezuma is 41 feet round. Strabo wrote of a cypress in Persia as being 2,500 years old. The largest tree in Mexico is 127 ft. round and 120 high, with branches of 30 ft. A chestnut tree on Mount Etna is 196 ft. round close to the ground and 5 of its branches resemble great trees. De Candolle says there are oaks in France 1,500 years old. The Wallace oak near Paisley is nearly 800 years old. The yew trees at Fountain's Abbey are about 1,200 years old. That at Crowhurst, 1,500. That at Fortingal, above 2,000. That at Braburn, 2,500 to 3,000. Ivys reach 500 or 600 years. The larch the same. The lime 600 or 700 years. The trunk of a walnut tree 12 ft. in diam., hollowed out, and furnished as a sitting-room, was imported from America and exhibited in London. The trunk was 80 ft. high, without a branch, and the entire height 150 ft., the bark 12 ins. thick and the branches from 3 to 4 ft. in diam. The California pine is from 150 to 200 ft. high and from 20 to 60 ft. in diam. The forests in watered, tropical countries are formed of trees from 100 to 200 ft. high, which grow to the water's edge of

trunks, presenting a solid and impenetrable barrier of trunks 10 or 12 ft. in diam. The dragon tree is in girth from 40 to 100 ft. and 50 or 60 feet high, and a misosa in South America is described whose head is 600 ft. round.

The duration of well seasoned wood, when kept dry, is very great, as beams still exist which are known to be nearly 1,100 years old. Piles driven by the Romans, and used in the formation of bridges prior to the Christian era, have been examined of late, and found to be perfectly sound after an immersion of nearly 2,000 years.

RUSSIAN WAY OF STOPPING HOLES IN SHIPS.—In that country there has lately been invented and successfully applied, a ready means for stopping holes made in ships by collision or otherwise. It consists of a plaster made of two rectangular sheets of canvas sewed together, bordered with a rope, and containing a water-proof material. A sounding-line has to be passed under the keel, and brought up on the other side, then the plaster can be lowered to the hole and made fast. Several cases are cited in which this invention has been employed with advantage, and a large number of Russian ships are now furnished with such plasters. It is proposed that men be specially trained and ready for the manœuvring of the apparatus.

HOW TO RAISE THE BODY OF A DROWNED PERSON.—In a recent failure to recover the body of a drowned person in New Jersey, a French-Canadian undertook the job, and proceeded as follows: Having supplied himself with some glass gallon-jars and a quantity of unslaked lime he went in a boat to the place where the man was seen to go down. One of the jars was filled half full of lime, then filled up with water and tightly corked. It was then dropped into the water and soon after exploded at the bottom of the river with a loud report. After the third trial, each time at a different place, the body rose to the surface and was secured.

HOW TO GET RID OF RATS.—Get a piece of lead pipe and use it as a funnel to introduce about $1\frac{1}{2}$ ozs. of sulphide of potassium into any outside holes tenanted by rats, not to be used in dwellings. To get rid of mice use tartar emetic mingled with any favorite food, they will eat, sicken, and take their leave.

VALUABLE SUGGESTIONS TO CLERKS AND WORKINGMEN.—Never consider time wasted that is spent in learning rudiments. In acquiring a knowledge of any art or handicraft the greatest difficulty is experienced at the beginning, because our work then possesses little or nothing of interest. Our first lessons in drawing or music, or with tools, are very simple; indeed so simple are they that we are disposed to undervalue their importance. The temptation is to skip a few pages and begin further on in the book. But such a course is fatal to success. To learn principles thoroughly is to succeed. Be content to learn one thing at a time, whether it be to push a plane square and true, or draw a straight line. Whatever you learn, learn it absolutely, without possible question. This will enable you to advance steadily, step by step, year after year, and some day you will wonder why you have been enabled

to distance the geniuses who once seemed so far in advance of you.

Set your heart upon what you have in hand. Valuable knowledge is acquired only by intense devotion. You must give your entire mind to whatever you undertake, otherwise you fail, or succeed indifferently, which is but little better than failure.

Learn, therefore, to estimate properly the value of what is called leisure time. There is entirely too much of this in the world. Do not mistake our meaning. Rest is necessary and play is well in its place, but young men who hope to do something in life must not expect to play one-third of their time.

While you resolve to acquire a thorough knowledge of your art, be equally as anxious to know something beyond it. A craftsman ought to be ashamed of himself who knows nothing but the use of his tools. Having the time to acquire it, be careful to properly estimate the value of knowledge. Remember of what use it will be to you in ten thousand instances as you go along in life, and be as conscientious in learning rudiments here as elsewhere. Learn to spell correctly, to write a good plain hand, and to punctuate your sentences.

Do not dress beyond your means; never spend your last dollar, unless for food to keep yourself or some one else from starving. You will always feel better to keep a little money in your pocket. At the earliest possible opportunity save up a few dollars and place the amount in a savings bank. It will serve as a magnet to attract other money that might be foolishly spent.

Just as soon as you can command the means, buy a piece of ground. Do not wait until you have saved enough to pay all down, but begin by paying one-third or one-quarter. Do not be afraid to go in debt for land, for it increases in value.

SAVE A LITTLE.—Every man who is obliged to work for his living should make a point to lay up a little money for that "rainy day" which we are all liable to encounter when least expected. The best way to do this is to open an account with a savings bank. Accumulated money is always safe; it is always ready to use when needed. Scrape together five dollars, make your deposit, receive your bank book, and then resolve to deposit a given sum, small though it be, once a month, or once a week, according to circumstances. Nobody knows without trying it, how easy a thing it is to save money when an account with a bank has been opened. With such an account a man feels a desire to enlarge his deposit. It gives him lessons in frugality and economy, weans him from habits of extravagance, and is the very best guard in the world against intemperance, dissipation and vice. Refer to page 277 for a table showing the time required by money to double itself when loaned at interest.

SYMBOLIC MEANING OF COLORS.—White was the emblem of light, religious purity, innocence, faith, joy and life. In the judge, it indicates integrity; in the sick, humility; in the woman, chastity.

Red, the ruby, signifies fire, divine love, heat of the creative power, and royalty. White and red roses express love and wisdom. The red color of the blood has its origin in the action of the heart, which corresponds to, or symbolizes love. In a bad sense, red corresponds to the infernal love of evil, hatred, etc.

Blue, or the sapphire, expresses heaven, the firmament, truth from a celestial origin, constancy and fidelity.

Yellow, or gold, is the symbol of the sun, of the goodness of God, of marriage and faithfulness. In a bad sense yellow signifies inconstancy, jealousy and deceit.

Green, the emerald, is the color of the spring, of hope, particularly of the hope of immortality and of victory, as the color of the laurel and palm.

Violet, the amethyst, signifies love and truth, or passion and suffering. Purple and scarlet signify things good and true from a celestial origin.

Black corresponds to despair, darkness, earthliness, mourning, negation, wickedness and death.

DURABILITY OF A HORSE.—A horse will travel 400 yards in $4\frac{1}{2}$ minutes at a walk, 400 yds. in 2 minutes at a trot, and 400 yds. in 1 minute at a gallop. The usual work of a horse is taken at 22,500 lbs. raised 1 foot per minute, for 8 hours per day. A horse will carry 250 lbs. 25 miles per day of 8 hours. An average draught-horse will draw 1,600 lbs. 23 miles per day on a level road, weight of wagon included. The average weight of a horse is 1,000 lbs.; his strength is equal to that of 5 men. In a horse mill moving at 3 feet per second, track 25 feet diameter, he exerts with the machine the power of $4\frac{1}{2}$ horses. The greatest amount a horse can pull in a horizontal line is 900 lbs.; but he can only do this momentarily, in continued exertion, probably half of this is the limit. He attains his growth in 5 years, will live 25, average 16 years. A horse will live 25 days on water, without solid food, 17 days without eating or drinking, but only 5 days on solid food, without drinking.

A cart drawn by horses over an ordinary road will travel 1.1 miles per hour of trip. A 4-horse team will haul from 25 to 36 cubic feet of lime stone at each load. The time expended in loading, unloading, etc., including delays, averages 35 minutes per trip. The cost of loading and unloading a cart, using a horse cram at the quarry, and unloading by hand, when labor is \$1.25 per day, and a horse 75 cents, is 25 cents per perch=24.75 cubic feet. The work done by an animal is greatest when the velocity with which he moves is $\frac{1}{8}$ of the greatest with which he can move when not impeded, and the force then exerted .45 of the utmost force the animal can exert at a dead pull.

COMPARATIVE COST OF FREIGHT BY WATER AND RAIL.—It has been proved by actual test that a single tow-boat can transport at one trip from the Ohio to New Orleans 29,000 tons of coal, loaded in barges. Estimating in this way the boat and its tow, worked by a few men, carries as much freight to its destination as 3,000 cars and 100 locomotives, manned by 600 men, could transport.

COST OF A PENNSYLVANIA RAILROAD PASSENGER CAR.—Detailed cost of constructing one first-class Standard Passenger Car, at the Altoona shops of the Pennsylvania R. R., the total cost being \$4,423.75. The principal items are as follows :

| | | | |
|--------------------------|------------|--------------------------|------------|
| Labôr | \$1,263 94 | 1 Air Brake, complete | 131 79 |
| Proportion of Fuel and | | 57 Sash Balances | 44 61 |
| Stores | 28 61 | 61 Lights Glasses | 65 83 |
| 2,480 feet Poplar | 86 80 | 2 Stoves..... | 77 56 |
| 3,434 feet Ash..... | 127 08 | 25 Sets Seat Fixtures.. | 50 50 |
| 1,100 feet Pine | 20 90 | 3 Bronze Lamps..... | 13 50 |
| 2,350 feet Yellow Pine.. | 70 50 | 2 Bronze Door Locks | 15 20 |
| 500 feet Oak | 10 00 | Butts and Hinges.. | 15 58 |
| 450 feet Hickory..... | 13 50 | 13 Basket Racks..... | 77 35 |
| 700 feet Mich. Pine.. | 40 00 | 12 Sash Levers | 42 00 |
| 400 feet Cherry..... | 16 00 | 61 Bronze Window | |
| 439 feet Maple veneer | 24 14 | Lifts | 24 40 |
| 4 pairs Wheels and | | 61 Window Fasteners.. | 16 47 |
| Axles..... | 332 85 | 238 Sheets Tin | 41 44 |
| 2 pairs Passenger | | 273 lbs. Galvanized Iron | 25 31 |
| Car Trucks..... | 533 62 | 96 yards Scarlet Plush | 228 87 |
| 13 gallons Varnish.. | 52 34 | 44 yards Green Plush.. | 109 99 |
| 45 lbs. Glue | 14 33 | 61 yards Sheeting | 10 30 |
| 2,925 lbs. Iron | 87 75 | 243 lbs. Hair..... | 72 95 |
| 792 lbs. Castings | 16 99 | 12 Springs..... | 22 96 |
| Screws..... | 51 88 | 12 Spiral Elliptic | |
| Gas Regulator | | Springs | 20 29 |
| and Guage..... | 25 25 | 1 Head Lining..... | 80 63 |
| 2 Two-Light Chan- | | 2 packets Gold Leaf.. | 14 58 |
| deliers..... | 50 72 | Various small items | 261 44 |
| 2 Gas Tanks | 84 00 | | |
| | | | \$4,423.75 |

TABLE, SHOWING THE NUMBER OF DAYS FROM ANY DAY IN ONE MONTH TO THE SAME DAY IN ANOTHER.

| FROM | To | Jan. | Feb. | Mar. | April. | May. | June. | July. | Aug. | Sept. | Oct. | Nov. | Dec. |
|----------------|----|------|------|------|--------|------|-------|-------|------|-------|------|------|------|
| January..... | | 365 | 31 | 59 | 90 | 120 | 151 | 181 | 212 | 243 | 273 | 304 | 334 |
| February..... | | 334 | 365 | 28 | 59 | 89 | 120 | 150 | 181 | 212 | 242 | 273 | 303 |
| March..... | | 306 | 337 | 365 | 31 | 61 | 92 | 122 | 153 | 184 | 214 | 245 | 275 |
| April..... | | 275 | 306 | 334 | 365 | 30 | 61 | 91 | 122 | 153 | 183 | 214 | 244 |
| May | | 245 | 276 | 304 | 335 | 365 | 31 | 61 | 92 | 123 | 153 | 184 | 214 |
| June | | 214 | 245 | 273 | 304 | 334 | 365 | 30 | 61 | 92 | 122 | 153 | 183 |
| July..... | | 184 | 215 | 243 | 274 | 304 | 335 | 365 | 31 | 62 | 92 | 123 | 153 |
| August | | 153 | 184 | 212 | 243 | 273 | 304 | 334 | 365 | 31 | 61 | 92 | 122 |
| September..... | | 122 | 153 | 181 | 212 | 242 | 273 | 303 | 334 | 365 | 30 | 61 | 91 |
| October | | 92 | 123 | 151 | 182 | 212 | 243 | 273 | 304 | 335 | 365 | 31 | 61 |
| November | | 61 | 92 | 120 | 151 | 181 | 212 | 242 | 273 | 304 | 334 | 365 | 30 |
| December | | 31 | 62 | 90 | 121 | 151 | 182 | 212 | 243 | 274 | 304 | 335 | 365 |

EXPLANATION.—To find the number of days from January 20 to Dec. 20, follow the horizontal line opposite January until you reach the column headed by December, when you will find 334, representing the required number of days, and so on with the other months. During leap year, if February enters into the calculation, add one day to the result.

Cost of Articles by the Piece, from 1 to 1 Dozen.

| | | | | | | | |
|---------|-----------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 12 cost | \$1 00 | \$1 25 | \$1 50 | \$1 75 | \$2 00 | \$2 25 | \$2 50 |
| 11 cost | 92 | 1 15 | 1 38 | 1 60 | 1 83 | 2 06 | 2 29 |
| 10 cost | 83 | 1 04 | 1 25 | 1 46 | 1 67 | 1 88 | 2 08 |
| 9 cost | 75 | 94 | 1 13 | 1 29 | 1 50 | 1 69 | 1 88 |
| 8 cost | 67 | 83 | 1 00 | 1 17 | 1 33 | 1 50 | 1 67 |
| 7 cost | 58 | 73 | 88 | 1 02 | 1 17 | 1 31 | 1 46 |
| 6 cost | 50 | 63 | 75 | 88 | 1 00 | 1 13 | 1 25 |
| 5 cost | 42 | 52 | 63 | 73 | 83 | 94 | 1 04 |
| 4 cost | 33 | 42 | 50 | 56 | 67 | 75 | 83 |
| 3 cost | 25 | 31 | 38 | 44 | 50 | 56 | 63 |
| 2 cost | 17 | 21 | 25 | 29 | 33 | 38 | 42 |
| 1 cost | 8 $\frac{1}{3}$ | 10 $\frac{1}{2}$ | 12 $\frac{1}{2}$ | 14 $\frac{5}{8}$ | 16 $\frac{2}{3}$ | 18 $\frac{3}{4}$ | 21 $\frac{1}{4}$ |

| | | | | | | | |
|---------|--------|--------|--------|------------------|------------------|------------------|------------------|
| 12 cost | \$2 75 | \$3 00 | \$3 25 | \$3 50 | \$3 75 | \$4 00 | \$4 25 |
| 11 cost | 2 52 | 2 75 | 2 98 | 3 21 | 3 44 | 3 67 | 3 89 |
| 10 cost | 2 29 | 2 50 | 2 73 | 2 92 | 3 13 | 3 33 | 3 54 |
| 9 cost | 2 06 | 2 25 | 2 44 | 2 63 | 2 81 | 3 00 | 3 19 |
| 8 cost | 1 83 | 2 00 | 2 17 | 2 33 | 2 56 | 2 67 | 2 83 |
| 7 cost | 1 60 | 1 75 | 1 90 | 2 04 | 2 19 | 2 33 | 2 48 |
| 6 cost | 1 38 | 1 50 | 1 63 | 1 75 | 1 88 | 2 00 | 2 13 |
| 5 cost | 1 15 | 1 25 | 1 36 | 1 46 | 1 56 | 1 67 | 1 77 |
| 4 cost | 92 | 1 00 | 1 09 | 1 17 | 1 25 | 1 33 | 1 42 |
| 3 cost | 69 | 75 | 82 | 88 | 94 | 1 00 | 1 06 |
| 2 cost | 46 | 50 | 55 | 58 | 63 | 67 | 71 |
| 1 cost | 23 | 25 | 28 | 29 $\frac{1}{4}$ | 31 $\frac{1}{4}$ | 33 $\frac{1}{3}$ | 35 $\frac{1}{2}$ |

| | | | | | | | |
|---------|------------------|------------------|------------------|------------------|--------|--------|--------|
| 12 cost | \$4 50 | \$4 75 | \$5 00 | \$5 25 | \$5 50 | \$5 75 | \$6 00 |
| 11 cost | 4 13 | 4 23 | 4 58 | 4 81 | 5 04 | 5 27 | 5 50 |
| 10 cost | 3 75 | 3 96 | 4 17 | 4 38 | 4 58 | 4 79 | 5 00 |
| 9 cost | 3 38 | 3 56 | 3 75 | 3 94 | 4 13 | 4 31 | 4 50 |
| 8 cost | 3 00 | 3 17 | 3 33 | 3 50 | 3 67 | 3 83 | 4 00 |
| 7 cost | 2 63 | 2 77 | 2 92 | 3 06 | 3 21 | 3 35 | 3 50 |
| 6 cost | 2 25 | 2 34 | 2 50 | 2 63 | 2 75 | 2 87 | 3 00 |
| 5 cost | 1 88 | 1 98 | 2 08 | 2 19 | 2 29 | 2 40 | 2 50 |
| 4 cost | 1 50 | 1 58 | 1 67 | 1 75 | 1 83 | 1 92 | 2 00 |
| 3 cost | 1 13 | 1 19 | 1 25 | 1 31 | 1 38 | 1 44 | 1 50 |
| 2 cost | 75 | 79 | 83 | 88 | 92 | 96 | 1 00 |
| 1 cost | 37 $\frac{1}{2}$ | 39 $\frac{5}{8}$ | 41 $\frac{3}{4}$ | 43 $\frac{3}{4}$ | 46 | 48 | 50 |

| | | | | | | | |
|---------|------------------|------------------|------------------|------------------|------------------|------------------|------------------|
| 12 cost | \$6 25 | \$6 50 | \$6 75 | \$7 00 | \$7 25 | \$7 50 | \$7 76 |
| 11 cost | 5 73 | 5 96 | 6 19 | 6 42 | 6 65 | 6 88 | 7 11 |
| 10 cost | 5 25 | 5 42 | 5 63 | 5 83 | 6 04 | 6 25 | 6 46 |
| 9 cost | 4 69 | 4 88 | 5 06 | 5 25 | 5 44 | 5 63 | 5 81 |
| 8 cost | 4 17 | 4 33 | 4 50 | 4 67 | 4 93 | 5 00 | 5 17 |
| 7 cost | 3 65 | 3 79 | 3 94 | 4 08 | 4 23 | 4 38 | 4 52 |
| 6 cost | 3 13 | 3 25 | 3 38 | 3 50 | 3 63 | 3 75 | 3 88 |
| 5 cost | 2 60 | 2 71 | 2 81 | 2 92 | 3 02 | 3 13 | 3 23 |
| 4 cost | 2 08 | 2 17 | 2 25 | 2 33 | 2 42 | 2 50 | 2 58 |
| 3 cost | 1 56 | 1 63 | 1 69 | 1 75 | 1 81 | 1 88 | 1 94 |
| 2 cost | 1 04 | 1 08 | 1 13 | 1 17 | 1 21 | 1 25 | 1 29 |
| 1 cost | 52 $\frac{1}{8}$ | 54 $\frac{1}{4}$ | 56 $\frac{1}{4}$ | 58 $\frac{1}{3}$ | 60 $\frac{1}{2}$ | 62 $\frac{1}{2}$ | 64 $\frac{3}{4}$ |

VALUES OF FOREIGN COINS.

As Adopted by the United States Treasury Department, April 1, 1892.

| COUNTRY. | STANDARD. | MONETARY UNIT. | VALUE IN U. S. GOLD. | COINS. |
|--------------------------------|-------------------|---|----------------------|---|
| Argentine Republic..... | Gold and silver.. | Peso | \$0.96.5 | Gold—Argentine (\$4.82,4) and ½ argentine. Silver—Peso and divisions. |
| Austria-Hungary | Silver | Florin | .32,8 | Gold—4 florins (\$1.92,9), 8 florins (\$3.85,8), ducat (\$2.28,7), and 4 ducats (\$9.15,8). Silver—1 and 2 florins. |
| Belgium | Gold and silver.. | Franc | .19,3 | Gold—10 and 20 francs. Silver—5 francs. |
| Bolivia | Silver | Boliviano | .66,5 | Silver—Boliviana and divisions. |
| Brazil | Gold | Milreis | .54,6 | Gold—5, 10 and 20 milreis. Silver—½, 1 and 2 milreis. |
| British Possessions, N. Amer.* | Gold | Dollar | 1.00 | |
| Central American States..... | Silver | Peso | .66,5 | Silver—Peso and divisions. |
| Chili | Gold and silver.. | Peso | .91,2 | Gold—Escudo (\$1.82,4), doubloon (\$4.56,1), condor (\$9.12,3). Silver—Peso and divisions. |
| China | Silver | Tael { Shanghai. Haikwan. (customs) | .98,2 1.09,3 | |
| Columbia | Silver | Peso | .66,5 | Gold—Condor (\$9.64,7) and double condor. Silver—Peso. |
| Cuba | Gold and silver.. | Peso | .92,6 | Gold—Doubloon (\$5.01,7). Silver—Peso. |
| Denmark | Gold | Crown | .26,8 | Gold—10 and 20 crowns. |
| Ecuador | Silver | Sucre | .66,5 | Gold—Condor (\$9.64,7) and double condor. Silver—Sucre and divisions. |
| Egypt | Gold | Pound (100 piastres) | 4.94,3 | Gold—Pound (100 piastres), 50, 20, 10, 5 piastres. Silver—1, 2, 5, 10, 20 piastres. |
| France | Gold and silver.. | Franc | .19,3 | Gold—5, 10, 20, 50 and 100 frs. Silver—5 frs. |
| German Empire..... | Gold | Mark | .23,8 | Gold—5, 10 and 20 marks. |

VALUES OF FOREIGN COINS—CONTINUED.

| COUNTRY. | STANDARD. | MONETARY UNIT. | VALUE IN U. S. GOLD | COINS. |
|------------------|-------------------|---------------------------------|---------------------|---|
| Great Britain... | Gold..... | Pound sterling... | \$4.86 6½ | Gold—Sovereign (£ sterling) and ½ sovereign. |
| Greece..... | Gold and silver.. | Drachma..... | .19,3 | Gold—5, 10, 20, 50 and 100 drachmas. Silver—5 drachmas. |
| Hayti..... | Gold and silver.. | Gourde..... | .96,5 | Silver—Gourde. |
| India..... | Silver..... | Rupee..... | .31,6 | Gold—Mohur (\$7.10,5). Silver—Rupee and divisions. |
| Italy..... | Gold and silver.. | Lira..... | .19,3 | Gold—5, 10, 20, 50, 100 liras. Silver—5 liras. |
| Japan..... | †Gold and silver. | Yen { Gold..... | .99,7 | Gold—1, 2, 5, 10 and 20 yen. |
| Liberia... | Gold..... | Dollar..... | .71,6 | Silver—Yen. |
| Mexico..... | Silver..... | Dollar..... | 1.00 | |
| | | | .72,2 | Gold—Dollar (\$0 98,3), 2½, 5, 10, 20 dollars. Silver—Dollar (or peso) and divisions. |
| Netherlands..... | Gold and silver.. | Florin..... | .40,2 | Gold—10 florins. Silver—½, 1, 2½ florins. |
| Newfoundland... | Gold..... | Dollar..... | 1.01,4 | Gold—2 dollars (\$2.02,7 ÷). |
| Norway..... | Gold..... | Crown..... | .26,8 | Gold—10 and 20 crowns. |
| Peru..... | Silver..... | Sol..... | .66,5 | Silver—Sol and divisions. |
| Portugal..... | Gold..... | Milreis..... | 1.08 | Gold—1, 2, 5 and 10 milreis. |
| Russia..... | Gold and silver.. | Rouble. { Gold... { Silver.. | .77,2 .53,1 | Gold—Imperial (\$7.71,8). ½ imperial (\$3.86,0).† Silver—¼, ½ and 1 rouble. |
| Spain..... | Gold and silver.. | Peseta..... | .19,3 | Gold—25 pesetas. Silver—5 pesetas. |
| Sweden..... | Gold..... | Crown..... | .26,8 | Gold—10 and 20 crowns. |
| Switzerland..... | Gold and silver.. | Franc..... | .19,3 | Gold—5, 10, 20, 50 and 100 francs. Silver—5 francs. |
| Tripoli..... | Silver..... | Mah bub of 20 piastres..... | .60 | |
| Turkey..... | Gold..... | Piastre..... | .04,4 | Gold—25, 50, 100, 250 and 500 piastres. |
| Venezuela..... | Silver..... | Bolivar..... | .13,3 | Gold—5, 10, 20, 50 and 100 bolivers. Silver—5 bolivars. |

* Except Newfoundland.

† Gold the nominal standard, silver practically the standard
‡ Coined since January 1, 1886; old half-imperial=\$3.98,6.

Gold and Silver Produced in the United States.

The following estimate of the gold and silver produced in the United States, since the discovery of gold in California, is compiled from the official reports of the Director of the United States Mint :

| Year. | Gold. | Silver. | Total. |
|-----------|--------------|------------|--------------|
| 1849..... | \$40,000,000 | \$50,000 | \$40,050,000 |
| 1850..... | 50,000,000 | 50,000 | 50,050,000 |
| 1851..... | 55,000,000 | 50,000 | 55,050,000 |
| 1852..... | 60,000,000 | 50,000 | 60,050,000 |
| 1853..... | 65,000,000 | 50,000 | 65,050,000 |
| 1854..... | 60,000,000 | 50,000 | 60,050,000 |
| 1855..... | 55,000,000 | 50,000 | 55,050,000 |
| 1856..... | 55,000,000 | 50,000 | 55,050,000 |
| 1857..... | 55,000,000 | 50,000 | 55,050,000 |
| 1858..... | 50,000,000 | 100,000 | 50,100,000 |
| 1859..... | 50,000,000 | 100,000 | 50,100,000 |
| 1860..... | 46,000,000 | 150,000 | 46,150,000 |
| 1861..... | 43,000,000 | 2,000,000 | 45,000,000 |
| 1862..... | 39,200,000 | 4,500,000 | 43,700,000 |
| 1863..... | 40,000,000 | 8,500,000 | 48,500,000 |
| 1864..... | 46,100,000 | 11,000,000 | 57,100,000 |
| 1865..... | 53,225,000 | 11,250,000 | 64,475,000 |
| 1866..... | 53,500,000 | 10,000,000 | 63,500,000 |
| 1867..... | 51,725,000 | 13,500,000 | 65,225,000 |
| 1868..... | 48,000,000 | 12,000,000 | 60,000,000 |
| 1869..... | 49,500,000 | 12,000,000 | 61,500,000 |
| 1870..... | 50,000,000 | 16,000,000 | 66,000,000 |
| 1871..... | 43,500,000 | 23,000,000 | 66,500,000 |
| 1872..... | 36,000,000 | 28,750,000 | 64,750,000 |
| 1873..... | 36,000,000 | 35,750,000 | 71,750,000 |
| 1874..... | 33,490,902 | 37,324,594 | 70,815,496 |
| 1875..... | 33,467,856 | 31,727,560 | 65,195,416 |
| 1876..... | 39,429,166 | 38,783,016 | 78,212,182 |
| 1877..... | 46,897,390 | 39,793,573 | 86,690,963 |

GOLD AND SILVER PRODUCED—(Continued)

| YEAR. | GOLD. | SILVER. | TOTAL. |
|---------------|---------------|-------------|---------------|
| 1878..... | 51,206,360 | 45,281,385 | 96,487,745 |
| 1879..... | 38,899,858 | 40,812,132 | 79,711,990 |
| 1880..... | 36,000,000 | 38,450,000 | 74,450,000 |
| 1881..... | 34,700,000 | 43,000,000 | 77,700,000 |
| 1882..... | 32,500,000 | 46,800,000 | 79,300,000 |
| 1883..... | 30,000,000 | 46,200,000 | 76,200,000 |
| 1884..... | 30,800,000 | 48,800,000 | 79,600,000 |
| 1885..... | 31,800,000 | 51,600,000 | 83,400,000 |
| 1886..... | 35,000,000 | 51,000,000 | 86,000,000 |
| 1887..... | 33,000,000 | 53,357,000 | 86,357,000 |
| 1888..... | 33,167,500 | 59,206,700 | 92,374,200 |
| 1889..... | 32,967,000 | 64,768,730 | 97,735,730 |
| T't'l to 1890 | 1,737,676,032 | 823,304,720 | ..... |
| Grand total | ..... | ..... | 2,560,980,752 |

Force Exerted by Dynamite.

Nitro-glycerine and dynamite do not, when exploded, exert as much force as is popularly believed. To speak precisely, the power developed by the explosion of a ton of dynamite is equal to 45,675 foot-tons. One ton of nitro-glycerine similarly exploded will exert a power of 54,452 foot-tons; and one ton of blasting gelatine, similarly exploded, 71,050 foot-tons. These figures, although large, are not enormous, and need not excite terror. Seventy-one thousand tons of ordinary building stone, if arranged in the form of a cube, would measure only ninety feet on the side, and if it were possible to concentrate the whole force of a ton of blasting gelatine at the moment of explosion on such a mass, the only effect would be to lift it to a height of a foot. The foregoing figures are derived from experiments made at Ardeer with an instrument that gives accurate results in measuring the force of explosives.

Lumber and Log Measurement at Sight

Showing net proceeds (fractions of feet omitted) of logs in 1 inch boards, deducting saw kerf and slabs. If the required dimension is not in the table, unite two or three suitable numbers together. The length will be found in the left hand column and the diameter in inches on the head of the other columns.

| Length, Feet. | Diam. 10 | Diam. 11 | Diam. 12 | Diam. 13 | Diam. 14 | Diam. 15 | Diam. 16 | Diam. 17 | Diam. 18 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 10 | 23 | 31 | 40 | 50 | 62 | 75 | 90 | 105 | 122 |
| 11 | 25 | 34 | 44 | 55 | 69 | 83 | 99 | 116 | 135 |
| 12 | 27 | 37 | 48 | 61 | 75 | 91 | 108 | 126 | 147 |
| 13 | 29 | 40 | 52 | 66 | 81 | 98 | 117 | 137 | 159 |
| 14 | 32 | 43 | 56 | 71 | 88 | 106 | 126 | 148 | 171 |
| 15 | 34 | 46 | 60 | 76 | 94 | 113 | 135 | 158 | 184 |
| 16 | 36 | 49 | 64 | 81 | 100 | 121 | 144 | 169 | 196 |
| 17 | 38 | 52 | 68 | 86 | 106 | 128 | 153 | 179 | 208 |
| 18 | 41 | 55 | 72 | 91 | 112 | 136 | 162 | 190 | 220 |
| 19 | 43 | 58 | 76 | 96 | 119 | 143 | 171 | 201 | 232 |
| 20 | 46 | 61 | 80 | 101 | 125 | 151 | 180 | 211 | 244 |
| 21 | 48 | 64 | 84 | 106 | 131 | 158 | 189 | 222 | 257 |
| 22 | 50 | 67 | 88 | 111 | 137 | 166 | 198 | 232 | 269 |
| 23 | 52 | 70 | 92 | 116 | 144 | 174 | 207 | 243 | 281 |
| 24 | 54 | 74 | 96 | 122 | 150 | 181 | 216 | 254 | 294 |
| 25 | 56 | 77 | 100 | 127 | 156 | 189 | 225 | 264 | 308 |
| 26 | 59 | 80 | 104 | 132 | 163 | 196 | 234 | 274 | 318 |
| 27 | 61 | 83 | 108 | 137 | 169 | 204 | 243 | 285 | 330 |
| 28 | 63 | 86 | 112 | 142 | 175 | 212 | 252 | 296 | 342 |
| 29 | 65 | 89 | 116 | 147 | 182 | 219 | 261 | 306 | 355 |
| 30 | 68 | 92 | 120 | 152 | 188 | 226 | 270 | 316 | 368 |
| 31 | 70 | 95 | 124 | 157 | 193 | 234 | 279 | 327 | 380 |
| 32 | 72 | 98 | 128 | 162 | 200 | 242 | 288 | 338 | 392 |
| 33 | 74 | 101 | 132 | 169 | 206 | 249 | 297 | 348 | 404 |
| 34 | 77 | 104 | 136 | 172 | 212 | 256 | 306 | 358 | 416 |
| 35 | 79 | 107 | 140 | 177 | 219 | 265 | 315 | 369 | 428 |
| 36 | 81 | 110 | 144 | 182 | 224 | 272 | 324 | 380 | 440 |

LUMBER AND LOG MEASUREMENT—(Cont'd)

| Length, Feet. | Diam. 19 | Diam. 20 | Diam. 21 | Diam. 22 | Diam. 23 | Diam. 24 | Diam. 25 | Diam. 26 | Diam. 27 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 10 | 140 | 160 | 180 | 202 | 225 | 250 | 275 | 302 | 330 |
| 11 | 154 | 176 | 198 | 223 | 248 | 275 | 302 | 333 | 363 |
| 12 | 169 | 192 | 217 | 243 | 271 | 300 | 331 | 363 | 397 |
| 13 | 183 | 208 | 235 | 263 | 293 | 325 | 358 | 393 | 430 |
| 14 | 197 | 224 | 253 | 283 | 313 | 350 | 386 | 433 | 463 |
| 15 | 211 | 240 | 271 | 303 | 336 | 375 | 413 | 453 | 496 |
| 16 | 225 | 256 | 289 | 324 | 359 | 400 | 441 | 484 | 530 |
| 17 | 239 | 272 | 307 | 344 | 383 | 425 | 468 | 514 | 563 |
| 18 | 253 | 288 | 325 | 364 | 406 | 450 | 496 | 544 | 596 |
| 19 | 267 | 304 | 343 | 384 | 429 | 475 | 523 | 574 | 630 |
| 20 | 280 | 320 | 361 | 404 | 452 | 500 | 550 | 605 | 661 |
| 21 | 293 | 336 | 379 | 425 | 473 | 525 | 579 | 635 | 693 |
| 22 | 309 | 352 | 397 | 445 | 496 | 550 | 605 | 665 | 726 |
| 23 | 323 | 368 | 415 | 465 | 519 | 575 | 632 | 695 | 760 |
| 24 | 338 | 384 | 433 | 486 | 541 | 600 | 662 | 726 | 794 |
| 25 | 351 | 400 | 451 | 506 | 562 | 625 | 689 | 756 | 827 |
| 26 | 366 | 416 | 370 | 526 | 586 | 650 | 716 | 786 | 860 |
| 27 | 380 | 432 | 488 | 546 | 606 | 675 | 744 | 826 | 893 |
| 28 | 394 | 448 | 506 | 566 | 626 | 700 | 772 | 866 | 926 |
| 29 | 408 | 464 | 524 | 586 | 649 | 725 | 799 | 886 | 959 |
| 30 | 422 | 480 | 542 | 606 | 672 | 750 | 826 | 906 | 992 |
| 31 | 436 | 496 | 560 | 627 | 695 | 775 | 854 | 937 | 1026 |
| 32 | 450 | 512 | 578 | 648 | 718 | 800 | 882 | 968 | 1060 |
| 33 | 464 | 528 | 596 | 668 | 742 | 825 | 909 | 998 | 1093 |
| 34 | 478 | 544 | 614 | 688 | 766 | 850 | 936 | 1028 | 1126 |
| 35 | 492 | 560 | 632 | 708 | 789 | 875 | 964 | 1058 | 1159 |
| 36 | 506 | 576 | 650 | 728 | 812 | 900 | 992 | 1088 | 1192 |

THE COMMON SCHOOLS OF THE UNITED STATES

(Census of 1890).

| | |
|---|---------------|
| Population..... | 62,622,250 |
| Enrolled Pupils..... | 12,697,196 |
| Average Daily Attendance..... | 8,144,938 |
| Average Length of School Term..... | 134 days. |
| Salaries of Superintendents and Teachers..... | \$91,683,338 |
| Total Expenditures for Public Schools..... | \$140,277,484 |
| Percentage of Population Enrolled. | 20.27 |
| Expended Per Capita of Population | \$2.24 |

LUMBER AND LOG MEASUREMENT—(Cont'd).

| Length, Feet. | Diam. 28 | Diam. 29 | Diam. 30 | Diam. 31 | Diam. 32 | Diam. 33 | Diam. 34 | Diam. 35 | Diam. 36 |
|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| 10 | 360 | 391 | 422 | 456 | 490 | 526 | 562 | 601 | 640 |
| 11 | 396 | 430 | 465 | 502 | 539 | 578 | 619 | 661 | 704 |
| 12 | 432 | 469 | 507 | 547 | 588 | 631 | 675 | 721 | 768 |
| 13 | 468 | 508 | 549 | 592 | 627 | 684 | 731 | 781 | 832 |
| 14 | 504 | 547 | 561 | 638 | 686 | 736 | 781 | 841 | 896 |
| 15 | 540 | 586 | 633 | 683 | 735 | 789 | 844 | 901 | 960 |
| 16 | 576 | 625 | 676 | 729 | 784 | 842 | 900 | 961 | 1024 |
| 17 | 612 | 664 | 718 | 774 | 833 | 895 | 956 | 1021 | 1088 |
| 18 | 648 | 703 | 761 | 820 | 882 | 946 | 1012 | 1081 | 1152 |
| 19 | 684 | 742 | 803 | 865 | 931 | 999 | 1069 | 1141 | 1216 |
| 20 | 720 | 782 | 845 | 912 | 980 | 1052 | 1125 | 1202 | 1280 |
| 21 | 756 | 820 | 887 | 957 | 1029 | 1103 | 1181 | 1261 | 1344 |
| 22 | 792 | 860 | 930 | 1004 | 1078 | 1156 | 1238 | 1322 | 1408 |
| 23 | 828 | 898 | 972 | 1049 | 1127 | 1209 | 1295 | 1381 | 1472 |
| 24 | 864 | 938 | 1014 | 1094 | 1176 | 1262 | 1350 | 1442 | 1536 |
| 25 | 900 | 977 | 1056 | 1139 | 1225 | 1315 | 1406 | 1501 | 1600 |
| 26 | 936 | 1016 | 1098 | 1184 | 1274 | 1368 | 1462 | 1562 | 1664 |
| 27 | 972 | 1055 | 1140 | 1230 | 1323 | 1420 | 1518 | 1622 | 1728 |
| 28 | 1008 | 1094 | 1182 | 1276 | 1372 | 1472 | 1574 | 1682 | 1792 |
| 29 | 1044 | 1133 | 1224 | 1321 | 1421 | 1525 | 1631 | 1742 | 1856 |
| 30 | 1080 | 1172 | 1266 | 1366 | 1470 | 1578 | 1688 | 1802 | 1920 |
| 31 | 1116 | 1211 | 1309 | 1412 | 1519 | 1631 | 1744 | 1862 | 1984 |
| 32 | 1152 | 1250 | 1352 | 1458 | 1568 | 1684 | 1800 | 1922 | 2048 |
| 33 | 1188 | 1289 | 1394 | 1503 | 1617 | 1737 | 1856 | 1982 | 2112 |
| 34 | 1224 | 1328 | 1436 | 1548 | 1666 | 1790 | 1912 | 2042 | 2176 |
| 35 | 1260 | 1367 | 1479 | 1594 | 1715 | 1841 | 1968 | 2102 | 2240 |
| 36 | 1296 | 1406 | 1522 | 1640 | 1764 | 1892 | 2024 | 2162 | 2304 |

Enormous Increase in Steel Production in the United States.

The total production of steel, in the form of ingots and direct castings, aggregates 4,466,926 tons of 2,000 pounds, an increase of 290 per cent over the production of the census year 1880, at which time steel was made in fourteen states in the Union, as against nineteen states engaged in that industry at the present time. The production of Bessemer steel rails has shown a remarkable growth, increasing from 741,475 tons in 1880 to 2,036,654 tons in 1890.

LUMBER MEASUREMENT TABLE.

Square timber and scantling brought down to 1 inch board measure. *Example:* To find the number of feet in a beam 6x10 and 24 feet in length, consult the table, and opposite 24 and under 6x10 you will find 120, the correct number of feet.

| Feet. | DIMENSIONS EACH WAY IN INCHES. | | | | | | | | |
|----------|--------------------------------|-------|-----|-------|------|------|-----|------|------|
| | 2x4 | 2x5 | 2x6 | 2x7 | 2x8 | 3x3 | 3x4 | 3x5 | 3x6 |
| 6 | 4. | 5. | 6. | 7. | 8. | 5.6 | 6. | 7.6 | 9. |
| 7 | 4.8 | 5.10 | 7. | 8.2 | 9.4 | 5.3 | 7. | 8.9 | 10.6 |
| 8 | 5.4 | 6.8 | 8 | 9.4 | 10.8 | 6. | 8. | 10. | 12. |
| 9 | 6. | 7.6 | 9 | 10.6 | 12. | 6.9 | 9. | 11.3 | 13.6 |
| 10 | 6.8 | 8.4 | 10. | 11.8 | 13.5 | 7.6 | 10. | 12.6 | 15. |
| 11 | 7.4 | 9.2 | 11. | 12.10 | 14.8 | 8.3 | 11. | 13.9 | 16.6 |
| 12 | 8. | 10. | 12. | 14. | 16. | 9. | 12. | 15. | 18. |
| 13 | 8.8 | 10.10 | 13 | 15.2 | 17.4 | 9.9 | 13. | 16.3 | 19.6 |
| 14 | 9.4 | 11.8 | 14. | 16.4 | 18.8 | 10.6 | 14. | 17.6 | 21. |
| 15 | 10. | 12.6 | 15. | 17.6 | 20. | 11.3 | 15. | 18.9 | 22.6 |
| 16 | 10.8 | 13.4 | 16. | 18.8 | 21.4 | 12. | 16. | 20. | 24. |
| 17 | 11.4 | 14.2 | 17. | 19.10 | 22.8 | 12.9 | 17. | 21.3 | 25.6 |
| 18 | 12. | 15. | 18. | 21. | 24. | 13.6 | 18. | 22.6 | 27. |
| 19 | 12.8 | 15.10 | 19. | 22.2 | 25.4 | 14.3 | 19. | 23.9 | 28.6 |
| 20 | 13.4 | 16.8 | 20. | 23.4 | 26.8 | 15. | 20. | 25. | 30. |
| 21 | 14. | 17.6 | 21. | 24.6 | 28. | 15.9 | 21. | 26.3 | 31.6 |
| 22 | 14.8 | 18.4 | 22. | 25.8 | 29.4 | 16.6 | 22. | 27.6 | 33. |
| 23 | 15.4 | 19.2 | 23. | 26.10 | 30.8 | 17.3 | 23. | 28.9 | 34.6 |
| 24 | 16. | 20. | 24. | 28. | 32. | 18. | 24. | 30. | 36. |
| 25 | 16.8 | 20.10 | 25. | 29.2 | 33.4 | 18.9 | 25. | 31.3 | 37.6 |
| 30 | 20. | 25. | 30. | 35. | 40. | 22.6 | 30. | 37.6 | 45. |
| 34 | 22.8 | 28.4 | 34. | 39.3 | 45.4 | 25.6 | 34. | 42.6 | 51. |
| 40 | 26.8 | 33.4 | 40. | 46.8 | 53.4 | 30. | 40. | 50. | 60. |
| 42 | 28. | 35. | 42. | 49. | 56. | 31.6 | 42. | 52.6 | 63. |
| 44 | 29.4 | 36.8 | 44. | 51.4 | 58.1 | 33. | 44. | 55. | 66. |

LUMBER MEASUREMENT TABLE—(Continued).

| Feet. | DIMENSIONS EACH WAY IN INCHES. | | | | | | | | |
|--------|--------------------------------|-----|------|------|-----|-------|-------|------|-------|
| | 3x7 | 3x8 | 4x4 | 4x5 | 4x6 | 4x7 | 4x8 | 4x9 | 5x5 |
| 6.... | 10.6 | 12. | 8. | 10. | 12. | 14. | 16. | 18. | 12.6 |
| 7.... | 12.3 | 14. | 9.4 | 11.8 | 14. | 16.4 | 18.8 | 21. | 14.7 |
| 8.... | 14. | 16. | 10. | 13.4 | 16. | 18.8 | 21.4 | 24. | 16.8 |
| 9.... | 15.9 | 18. | 12. | 15. | 18. | 21. | 24. | 27. | 18.9 |
| 10.... | 17.6 | 20. | 13.4 | 16.8 | 20. | 23.4 | 26.8 | 30. | 20.10 |
| 11.... | 19.3 | 22. | 14.8 | 18.4 | 22. | 25.8 | 29.4 | 33. | 22.11 |
| 12.... | 21. | 24. | 16. | 20. | 24. | 28. | 32. | 36. | 25. |
| 13.... | 22.9 | 26. | 17.4 | 21.8 | 26. | 30.4 | 34.8 | 39. | 27.1 |
| 14.... | 24.6 | 28. | 18.8 | 23.4 | 28. | 32.8 | 37.4 | 42. | 29.2 |
| 15.... | 26.3 | 30. | 20.0 | 25. | 30. | 35. | 40. | 45. | 31.3 |
| 16.... | 28. | 32. | 21.4 | 26.8 | 32. | 37.4 | 42.8 | 48. | 33.4 |
| 17.... | 29.9 | 34. | 22.8 | 28.4 | 34. | 39.8 | 45.4 | 51. | 35.1 |
| 18.... | 31.6 | 36. | 24. | 30. | 36. | 42. | 48. | 54. | 37.6 |
| 19.... | 33.3 | 38. | 24.4 | 31.8 | 38. | 44.4 | 50.8 | 57. | 39.7 |
| 20.... | 35. | 40. | 26.8 | 33.4 | 40. | 46.8 | 53.4 | 60. | 41.8 |
| 21.... | 36.9 | 42. | 28. | 35. | 42. | 49. | 56. | 63. | 43.9 |
| 22.... | 38.6 | 44. | 29.4 | 36.8 | 44. | 51.4 | 58.8 | 66. | 45.1 |
| 23.... | 40.3 | 46. | 30.8 | 38.4 | 46. | 53.8 | 61.4 | 69. | 47.1 |
| 24.... | 42. | 48. | 32. | 40. | 48. | 56. | 64. | 72. | 50. |
| 25.... | 43.9 | 50. | 33.4 | 41.8 | 50. | 58.4 | 66.8 | 75. | 52.1 |
| 30.... | 52.6 | 60. | 40. | 50. | 60. | 70. | 80. | 90. | 62.6 |
| 34.... | 59.6 | 68. | 45.4 | 58.8 | 68. | 79.4 | 90.8 | 102. | 70.18 |
| 40.... | 70. | 80. | 53. | 66.8 | 80. | 93.4 | 106.8 | 120. | 83.4 |
| 42.... | 73.6 | 84. | 56. | 70. | 84. | 98. | 112. | 126. | 87.6 |
| 44.... | 77. | 88. | 58.8 | 73.6 | 88. | 102.8 | 117.4 | 132. | 90.8 |

First American Coins.—The first coins minted in North America were produced in Mexico in 1535, and the coinage of the colonies that afterward became the United States used the Mexican dollar as the standard of value.

Cholera Remedies.—There are said to be 1,142 patent remedies for cholera in the list at the United States Patent Office.

LUMBER MEASUREMENT TABLE--(Continued)

| Feet. | DIMENSIONS EACH WAY IN INCHES. | | | | | | | |
|---------|--------------------------------|-------|-------|------|------|------|-------|------|
| | 5x6 | 5x7 | 5x8 | 6x6 | 6x7 | 6x8 | 6x9 | 6x10 |
| 6..... | 15. | 17.6 | 20. | 18. | 21. | 24. | 27. | 30. |
| 7..... | 17.6 | 20.5 | 23.4 | 21. | 24.6 | 28. | 31.6 | 35. |
| 8..... | 20. | 23.4 | 26.8 | 24. | 28. | 32. | 36. | 40. |
| 9..... | 22.6 | 26.3 | 30. | 27. | 31.6 | 36. | 40.6 | 45. |
| 10..... | 25. | 29.2 | 33.4 | 30. | 35. | 40. | 45. | 50. |
| 11..... | 27.6 | 32.1 | 36.8 | 33. | 38.6 | 44. | 49.6 | 55. |
| 12..... | 30. | 35. | 40. | 36. | 42. | 48. | 54. | 60. |
| 13..... | 32.6 | 37.11 | 43.4 | 39. | 45.6 | 52. | 58.6 | 65. |
| 14..... | 35. | 40.10 | 46.8 | 42. | 49. | 56. | 63. | 70. |
| 15..... | 37.6 | 43.9 | 50. | 45. | 52.6 | 60. | 67.6 | 75. |
| 16..... | 40. | 46.8 | 53.4 | 48. | 56. | 64. | 72. | 80. |
| 17..... | 42.6 | 49.7 | 56.8 | 51. | 59.6 | 68. | 76.6 | 85. |
| 18..... | 45. | 52.6 | 60. | 54. | 63. | 72. | 81. | 90. |
| 19..... | 47.6 | 55.5 | 63.4 | 57. | 66.6 | 76. | 85.6 | 95. |
| 20..... | 50. | 58.4 | 66.8 | 60. | 70. | 80. | 90. | 100. |
| 21..... | 52.6 | 61.3 | 70. | 63. | 73.6 | 84. | 94.6 | 105. |
| 22..... | 55. | 64.2 | 73.4 | 66. | 77. | 88. | 99. | 110. |
| 23..... | 57.6 | 67.1 | 76.8 | 69. | 80.6 | 92. | 103.6 | 115. |
| 24..... | 60. | 70. | 80. | 72. | 84. | 96. | 108. | 120. |
| 25..... | 62.6 | 72.11 | 83.4 | 75. | 87.6 | 100. | 112.6 | 125. |
| 30..... | 75. | 87.6 | 100. | 90. | 105. | 120. | 135. | 150. |
| 34..... | 85. | 99.2 | 113.4 | 102. | 119. | 136. | 153. | 170. |
| 40..... | 100. | 116.8 | 133.4 | 120. | 140. | 160. | 180. | 200. |
| 42..... | 105. | 122.6 | 140. | 126. | 147. | 168. | 189. | 210. |
| 44..... | 110. | 128.4 | 146.8 | 132. | 154. | 176. | 198. | 220. |

The Farmers of America.—In 1860 the farms of the United States were valued at \$9,854,000,000, now they are worth \$200,958,000,000; in 1860 the live stock was valued at \$246,000,000, now it is worth \$550,000,000; in 1860 the farmers owned household furniture to the amount of \$1,089,000,000, now they own \$2,418,000,000 worth; in 1860 the farm implements in use aggregated \$6,645,000,000, now the total is \$13,110,000,000.

LUMBER MEASUREMENT AT SIGHT.

ONE INCH BOARD MEASURE.

FOR PLANK, double or treble the product, as may be required. If a board or plank is longer or wider than the dimensions here given, add two suitable numbers together. The left-hand column contains the length in feet; the width in inches heads each column.

| FEET LONG. | 6 in W | 7 in W | 8 in W | 9 in W | 10 in W | 11 in W | 12 in W |
|---------------|---------|---------|---------|---------|---------|---------|---------|
| | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. |
| 8... | 4 0 | 4 8 | 5 4 | 6 0 | 6 8 | 7 4 | 8 0 |
| 9... | 4 6 | 5 3 | 6 0 | 6 9 | 7 6 | 8 3 | 9 0 |
| 10... | 5 0 | 5 10 | 6 8 | 7 6 | 8 4 | 9 2 | 10 0 |
| 11... | 5 6 | 6 5 | 7 4 | 8 3 | 9 2 | 10 1 | 11 0 |
| 12... | 6 0 | 7 0 | 8 0 | 9 0 | 10 0 | 11 0 | 12 0 |
| 13... | 6 6 | 7 7 | 8 8 | 9 9 | 10 10 | 11 11 | 13 0 |
| 14... | 7 0 | 8 2 | 9 4 | 10 6 | 11 8 | 12 10 | 14 0 |
| 15... | 7 6 | 8 9 | 10 0 | 11 3 | 12 6 | 13 9 | 15 0 |
| 16... | 8 0 | 9 4 | 10 8 | 12 0 | 13 4 | 14 8 | 16 0 |
| 17... | 8 6 | 9 11 | 11 4 | 12 9 | 14 2 | 15 7 | 17 0 |
| 18... | 9 0 | 10 6 | 12 0 | 13 6 | 15 0 | 16 6 | 18 0 |
| 19... | 9 6 | 11 1 | 12 8 | 14 3 | 15 10 | 17 5 | 19 0 |
| 20... | 10 0 | 11 8 | 13 4 | 15 0 | 16 8 | 18 4 | 20 0 |
| 21... | 10 6 | 12 3 | 14 0 | 15 9 | 17 6 | 19 3 | 21 0 |
| 22... | 11 0 | 12 10 | 14 8 | 16 6 | 18 4 | 20 2 | 22 0 |
| 23... | 11 6 | 13 5 | 15 4 | 17 3 | 19 2 | 21 1 | 23 0 |
| 24... | 12 0 | 14 0 | 16 0 | 18 0 | 20 0 | 22 0 | 24 0 |
| 25... | 12 6 | 14 7 | 16 8 | 18 9 | 20 10 | 22 11 | 25 0 |
| 26... | 13 0 | 15 2 | 17 4 | 19 6 | 21 8 | 23 10 | 26 0 |
| 27... | 13 6 | 15 9 | 18 0 | 20 3 | 22 6 | 24 9 | 27 0 |
| 28... | 14 0 | 16 4 | 18 8 | 21 0 | 23 4 | 25 8 | 28 0 |
| 29... | 14 6 | 16 11 | 19 4 | 21 9 | 24 2 | 26 7 | 29 0 |
| 30... | 15 0 | 17 6 | 20 0 | 22 6 | 25 0 | 27 6 | 30 0 |
| 31... | 15 6 | 18 1 | 20 8 | 23 3 | 25 10 | 28 5 | 31 0 |
| 32... | 16 0 | 18 8 | 21 4 | 24 0 | 26 8 | 29 4 | 32 0 |
| 33... | 16 6 | 19 3 | 22 0 | 24 9 | 27 6 | 30 3 | 33 0 |
| 34... | 17 0 | 19 10 | 22 8 | 25 6 | 28 4 | 31 2 | 34 0 |
| 35... | 17 6 | 20 5 | 23 4 | 26 3 | 29 2 | 32 1 | 35 0 |
| 36... | 18 0 | 21 0 | 24 0 | 27 0 | 30 0 | 33 0 | 36 0 |

LUMBER MEASUREMENT AT SIGHT.

(Continued.)

| FEET LONG. | 13 in W | 14 in W | 15 in W | 16 in W | 17 in W | 18 in W | 19 in W |
|---------------|---------|---------|---------|---------|---------|---------|---------|
| | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. |
| 8... | 8 8 | 9 4 | 10 0 | 10 8 | 11 4 | 12 0 | 12 8 |
| 9... | 9 9 | 10 6 | 11 3 | 12 0 | 12 9 | 13 6 | 14 3 |
| 10... | 10 10 | 11 8 | 12 6 | 13 4 | 14 2 | 15 0 | 15 10 |
| 11... | 11 11 | 12 10 | 13 9 | 14 8 | 15 7 | 16 6 | 17 5 |
| 12... | 13 0 | 14 0 | 15 0 | 16 0 | 17 0 | 18 0 | 19 0 |
| 13... | 14 1 | 15 2 | 16 3 | 17 4 | 18 5 | 19 6 | 20 7 |
| 14... | 15 2 | 16 4 | 17 6 | 18 8 | 19 10 | 21 0 | 22 2 |
| 15... | 16 3 | 17 6 | 18 9 | 20 0 | 21 3 | 22 6 | 23 9 |
| 16... | 17 4 | 18 8 | 20 0 | 21 4 | 22 8 | 24 0 | 25 4 |
| 17... | 18 5 | 19 10 | 21 3 | 22 8 | 24 1 | 25 6 | 26 11 |
| 18... | 19 6 | 21 0 | 22 6 | 24 0 | 25 6 | 27 0 | 28 6 |
| 19... | 20 7 | 22 2 | 23 9 | 25 4 | 26 11 | 28 6 | 30 1 |
| 20... | 21 8 | 23 4 | 25 0 | 26 8 | 28 4 | 30 0 | 31 8 |
| 21... | 22 9 | 24 6 | 26 3 | 28 0 | 29 9 | 31 6 | 33 3 |
| 22... | 23 10 | 25 8 | 27 6 | 29 4 | 31 2 | 33 0 | 34 10 |
| 23... | 24 11 | 26 10 | 28 9 | 30 8 | 32 7 | 34 6 | 36 5 |
| 24... | 26 0 | 28 0 | 30 0 | 32 0 | 34 0 | 36 0 | 38 0 |
| 25... | 27 1 | 29 2 | 31 3 | 33 4 | 35 5 | 37 6 | 39 7 |
| 26... | 28 2 | 30 4 | 32 6 | 34 8 | 36 10 | 39 0 | 41 2 |
| 27... | 29 3 | 31 6 | 33 9 | 36 0 | 38 3 | 40 6 | 42 9 |
| 28... | 30 4 | 32 8 | 35 0 | 37 4 | 39 8 | 42 0 | 44 4 |
| 29... | 31 5 | 33 10 | 36 3 | 38 8 | 41 1 | 43 6 | 45 11 |
| 30... | 32 6 | 35 0 | 37 6 | 40 0 | 42 6 | 45 0 | 47 6 |
| 31... | 33 7 | 36 2 | 38 9 | 41 6 | 44 0 | 46 6 | 49 0 |
| 32... | 34 8 | 37 4 | 40 0 | 42 6 | 45 6 | 48 0 | 50 6 |
| 33... | 35 9 | 38 6 | 41 3 | 44 0 | 46 6 | 49 6 | 52 0 |
| 34... | 36 10 | 39 8 | 42 6 | 45 6 | 48 0 | 51 0 | 54 0 |
| 35... | 37 11 | 40 10 | 43 9 | 46 6 | 49 6 | 52 6 | 55 6 |
| 36... | 39 0 | 42 0 | 45 0 | 48 0 | 51 0 | 54 0 | 57 0 |

Value of Alaska to the United States.

Alaska cost the United States \$7,000,000, and the fur seal company has already paid our government over \$8,000,000 for the privileges it enjoys of taking seals from the territorial waters.

LUMBER MEASUREMENT AT SIGHT.

(Continued.)

| FEET LONG. | 20 in W | | 21 in W | | 22 in W | | 23 in W | | 24 in W | | 25 in W | |
|------------|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|---------|-----|
| | ft. | in. | ft. | in. | ft. | in. | ft. | in. | ft. | in. | ft. | in. |
| 8..... | 13 | 4 | 14 | 0 | 14 | 8 | 15 | 4 | 16 | 0 | 16 | 8 |
| 9..... | 15 | 0 | 15 | 9 | 16 | 6 | 17 | 3 | 18 | 0 | 18 | 9 |
| 10..... | 16 | 8 | 17 | 6 | 18 | 4 | 19 | 2 | 20 | 0 | 20 | 10 |
| 11..... | 18 | 4 | 19 | 3 | 20 | 2 | 21 | 1 | 22 | 0 | 22 | 11 |
| 12..... | 20 | 0 | 21 | 0 | 22 | 0 | 23 | 0 | 24 | 0 | 25 | 0 |
| 13..... | 21 | 8 | 22 | 9 | 23 | 10 | 24 | 11 | 26 | 0 | 27 | 1 |
| 14..... | 23 | 4 | 24 | 6 | 25 | 8 | 26 | 10 | 28 | 0 | 29 | 2 |
| 15..... | 25 | 0 | 26 | 3 | 27 | 6 | 28 | 9 | 30 | 0 | 31 | 3 |
| 16..... | 26 | 8 | 28 | 0 | 29 | 4 | 30 | 8 | 32 | 0 | 33 | 4 |
| 17..... | 28 | 4 | 29 | 9 | 31 | 2 | 32 | 7 | 34 | 0 | 35 | 5 |
| 18..... | 30 | 0 | 31 | 6 | 33 | 0 | 34 | 6 | 36 | 0 | 37 | 6 |
| 19..... | 31 | 8 | 33 | 3 | 34 | 10 | 36 | 5 | 38 | 0 | 39 | 7 |
| 20..... | 33 | 4 | 35 | 0 | 36 | 8 | 38 | 4 | 40 | 0 | 41 | 8 |
| 21..... | 35 | 0 | 36 | 9 | 38 | 6 | 40 | 3 | 42 | 0 | 43 | 9 |
| 22..... | 36 | 8 | 38 | 6 | 40 | 4 | 42 | 2 | 44 | 0 | 45 | 10 |
| 23..... | 38 | 4 | 40 | 3 | 42 | 2 | 44 | 1 | 46 | 0 | 47 | 11 |
| 24..... | 40 | 0 | 42 | 0 | 44 | 0 | 46 | 0 | 48 | 0 | 50 | 0 |
| 25..... | 41 | 8 | 43 | 9 | 45 | 10 | 47 | 11 | 50 | 0 | 52 | 1 |
| 26..... | 43 | 4 | 45 | 6 | 47 | 8 | 49 | 10 | 52 | 0 | 54 | 2 |
| 27..... | 45 | 0 | 47 | 3 | 49 | 6 | 51 | 9 | 54 | 0 | 56 | 3 |
| 28..... | 46 | 8 | 49 | 0 | 51 | 4 | 53 | 8 | 56 | 0 | 58 | 4 |
| 29..... | 48 | 4 | 50 | 9 | 53 | 2 | 55 | 7 | 58 | 0 | 60 | 5 |
| 30..... | 50 | 0 | 51 | 6 | 55 | 0 | 57 | 6 | 60 | 0 | 62 | 6 |
| 31..... | 51 | 6 | 54 | 0 | 57 | 0 | 59 | 6 | 62 | 0 | 64 | 6 |
| 32..... | 53 | 6 | 56 | 0 | 58 | 6 | 61 | 6 | 64 | 0 | 66 | 6 |
| 33..... | 55 | 0 | 57 | 6 | 60 | 6 | 63 | 0 | 66 | 0 | 68 | 4 |
| 34..... | 56 | 6 | 59 | 6 | 62 | 6 | 65 | 0 | 68 | 0 | 70 | 6 |
| 35..... | 58 | 6 | 61 | 0 | 64 | 0 | 67 | 0 | 70 | 0 | 73 | 0 |
| 36..... | 60 | 0 | 63 | 0 | 66 | 0 | 69 | 0 | 72 | 0 | 75 | 0 |

The Highest Railroad in the United States.

The highest railroad in the United States is the Denver & Rio Grande, Marshall Pass, 10,853 feet.

LUMBER MEASUREMENT TABLE.

Square Timber and Scantling — Measurement at Sight.

Dimensions in inches head each column, and the length will be found in the left-hand column. If the required dimensions cannot be found in the table, add two lengths or breadths together, or take part of some length or breadth, as the case may require.

| FEET. | DIMENSIONS EACH WAY IN INCHES. | | | | | | | | |
|-------|--------------------------------|------|-------|-------|-------|--------|--------|------|-------|
| | 6.11 | 6.12 | 7.7 | 7.8 | 7.9 | 7.10 | 7.11 | 7.12 | 8.8 |
| 6 | 33. | 36. | 24. 6 | 28. | 31.6 | 35. | 38. 6 | 42. | 32. |
| 7 | 38.6 | 42. | 28. 7 | 32.8 | 36.9 | 40.10 | 41.11 | 49. | 37.4 |
| 8 | 44. | 48. | 32. 8 | 37.4 | 42. | 46. 8 | 55. 4 | 56. | 42.8 |
| 9 | 49.6 | 54. | 36. 9 | 42. | 47.3 | 52. 6 | 57. 9 | 63. | 48. |
| 10 | 55. | 60. | 40.10 | 46.8 | 52.6 | 58. 4 | 64. 2 | 70. | 53.4 |
| 11 | 60.6 | 66. | 40.11 | 51.4 | 57.9 | 64. 2 | 70. 7 | 77. | 58.8 |
| 12 | 66.1 | 72. | 49. | 56. | 63. | 70. | 77. | 84. | 64. |
| 13 | 71.6 | 78. | 53. 1 | 60.8 | 68.3 | 75.10 | 83. 5 | 91. | 69.4 |
| 14 | 77.6 | 84. | 57. 2 | 65.4 | 73.6 | 81. 8 | 89.10 | 98. | 74.8 |
| 15 | 82.6 | 90. | 61. 3 | 70. | 78.9 | 87. 6 | 96. 3 | 105. | 80. |
| 16 | 88. | 96. | 64. 4 | 74.8 | 84. | 93. 4 | 102. 8 | 112. | 85.4 |
| 17 | 93.6 | 102. | 69. 5 | 79.4 | 89.3 | 99. 2 | 109. 1 | 119. | 90.8 |
| 18 | 99. | 108. | 73. 6 | 84. | 94.6 | 105. | 115. 6 | 126. | 96. |
| 19 | 104.6 | 114. | 77. 7 | 88.8 | 99.9 | 110.10 | 121.11 | 133. | 101.4 |
| 20 | 110. | 120. | 81. 8 | 93.4 | 105. | 116. 8 | 128. 4 | 140. | 106.8 |
| 21 | 115.6 | 126. | 85. 9 | 98. | 110.3 | 122. 6 | 134. 9 | 147. | 112. |
| 22 | 121. | 132. | 89.10 | 102.8 | 115.6 | 128. 5 | 141. 2 | 154. | 117.4 |
| 23 | 126.6 | 138. | 93.11 | 107.4 | 120.9 | 134. 2 | 147. 7 | 161. | 122.8 |
| 24 | 132. | 144. | 98. | 112. | 126. | 140. | 154. | 168. | 128. |
| 26 | 143. | 156. | 106.2 | 121.4 | 136.6 | 151. 8 | 166.10 | 182. | 138.8 |
| 28 | 154. | 168. | 114.4 | 130.8 | 147. | 163. | 179. 8 | 196. | 148.8 |
| 30 | 165. | 180. | 122.6 | 140. | 157.6 | 175. | 192. 6 | 210. | 160. |
| 32 | 176. | 192. | 128.8 | 149.4 | 168. | 186. 8 | 205. 4 | 224. | 170.8 |

LUMBER MEASUREMENT TABLE.

(Continued.)

| FEET. | DIMENSIONS EACH WAY IN INCHES. | | | | | | | |
|---------|--------------------------------|-------|-------|------|-------|-------|-------|------|
| | 8.9 | 8.10 | 8.11 | 8.12 | 9.9 | 9.10 | 9.11 | 9.12 |
| 6..... | 36. | 40. | 44. | 48. | 40.6 | 45. | 49.6 | 54. |
| 7..... | 42. | 46.8 | 51.4 | 56. | 47.3 | 52.6 | 57.9 | 63. |
| 8..... | 48. | 53.4 | 58.8 | 64. | 54. | 60. | 66. | 72. |
| 9..... | 54. | 60. | 66. | 72. | 60.9 | 67.6 | 74.3 | 81. |
| 10..... | 60. | 66.8 | 73.4 | 80. | 67.6 | 75. | 82.6 | 90. |
| 11..... | 66. | 73.4 | 80.8 | 88. | 74.3 | 82.6 | 90.9 | 99. |
| 12..... | 72. | 80. | 88. | 96. | 81. | 90. | 99. | 108. |
| 13..... | 78. | 86.8 | 95.4 | 104. | 87.9 | 97.6 | 107.3 | 117. |
| 14..... | 84. | 93.4 | 102.8 | 112. | 94.6 | 105. | 115.6 | 126. |
| 15..... | 90. | 100. | 110. | 120. | 101.3 | 112.6 | 123.9 | 135 |
| 16..... | 96. | 106.8 | 117.4 | 128. | 108. | 120. | 132. | 144 |
| 17..... | 102. | 113.4 | 124.8 | 136. | 114.9 | 127.6 | 140.3 | 153 |
| 18..... | 108. | 120. | 132. | 144. | 121.6 | 135. | 148.6 | 162 |
| 19..... | 114. | 126.8 | 139.4 | 152. | 128.3 | 142.6 | 156.9 | 171 |
| 20..... | 120. | 133.4 | 146.8 | 160. | 135. | 150. | 165. | 180 |
| 21..... | 126. | 140. | 154. | 168. | 141.9 | 157.6 | 173.3 | 189 |
| 22..... | 132. | 146.8 | 161.4 | 176. | 148.6 | 165. | 181.6 | 198. |
| 23..... | 138. | 153.4 | 168.8 | 184. | 155.3 | 172.6 | 189.9 | 207. |
| 24..... | 144. | 160. | 176. | 192. | 162. | 180. | 198. | 216. |
| 26..... | 156. | 173.4 | 190.8 | 208. | 175.6 | 195.2 | 214.6 | 234. |
| 28..... | 168. | 186.8 | 205.4 | 224. | 189. | 210. | 231. | 252. |
| 30..... | 180. | 200. | 220. | 240. | 202.6 | 225. | 247.6 | 270. |
| 32..... | 192. | 213.8 | 234.8 | 256. | 216. | 240. | 264. | 288. |

Strength of Ice of Various Thicknesses

Ice two inches thick will bear men to walk on.

Ice four inches thick will bear horses and riders.

Ice six inches thick will bear teams with moderate loads.

Ice eight inches thick will bear teams with very heavy loads.

Ice ten inches thick will sustain a pressure of 1,000 pounds per square foot.

LUMBER MEASUREMENT TABLE.

(Continued.)

| FEET | DIMENSIONS EACH WAY IN INCHES. | | | | | | | |
|-------|--------------------------------|--------|--------|--------|--------|--------|--------|--------|
| | 10. 10 | 10. 11 | 10. 12 | 11. 11 | 11. 12 | 12. 12 | 12. 13 | 12. 14 |
| 6... | 50. | 55. | 60. | 60.6 | 66. | 72. | 78. | 84. |
| 7... | 58.4 | 64. 2 | 70. | 70.7 | 77. | 84. | 91. | 98. |
| 8... | 66.8 | 73. 4 | 80. | 80.8 | 88. | 96. | 104. | 112. |
| 9... | 75. | 86. 6 | 90. | 90.9 | 99. | 108. | 117. | 126. |
| 10... | 83.4 | 91. 8 | 100. | 100.10 | 110. | 120. | 130. | 140. |
| 11... | 91.8 | 100.10 | 110. | 110.11 | 121. | 132. | 143. | 154. |
| 12... | 100. | 110. | 120. | 121. | 132. | 144. | 156. | 168. |
| 13... | 108.4 | 119. 2 | 130. | 131.1 | 143. | 156. | 169. | 182. |
| 14... | 116.8 | 128. 4 | 140. | 141.2 | 154. | 168. | 182. | 196. |
| 15... | 125. | 137. 6 | 150. | 151.3 | 165. | 180. | 195. | 210. |
| 16... | 133.4 | 146. 8 | 160. | 161.4 | 176. | 192. | 208. | 224. |
| 17... | 141.8 | 155.10 | 170. | 171.5 | 187. | 204. | 221. | 238. |
| 18... | 150. | 165. | 180. | 181.6 | 198. | 216. | 234. | 252. |
| 19... | 158.4 | 174. 2 | 190. | 191.7 | 209. | 228. | 247. | 266. |
| 20... | 166.8 | 183. 4 | 200. | 201.8 | 220. | 240. | 260. | 280. |
| 21... | 175. | 192. 6 | 210. | 211.9 | 231. | 252. | 273. | 294. |
| 22... | 183.4 | 201. 8 | 220. | 221.10 | 242. | 264. | 286. | 308. |
| 23... | 191.8 | 210.10 | 230. | 231.11 | 253. | 276. | 299. | 322. |
| 24... | 200. | 220. | 240. | 242. | 264. | 288. | 312. | 336. |
| 26... | 216.8 | 238. 4 | 260. | 262.2 | 286. | 312. | 338. | 364. |
| 28... | 233.8 | 256. 8 | 280. | 282.4 | 308. | 336. | 364. | 392. |
| 30... | 250. | 275. 6 | 300. | 302.6 | 330. | 370. | 390. | 420. |
| 32... | 266.8 | 293. 4 | 320. | 322.8 | 352. | 384. | 416. | 448. |

A Waterproof Blacking which will give a fine polish without rubbing, and will not injure the leather: 18 parts bees wax, 6 parts spermaceti, 66 parts oil of turpentine, 5 parts asphalt varnish, 1 part powdered borax, 5 parts Frankfort black, 2 parts Prussian blue, 1 part nitro-benzol. Melt the wax, add the powdered borax, and stir until a kind of jelly has been formed. In another pan melt the spermaceti, add the asphalt varnish, previously mixed with the oil of turpentine, stir well, and add to the wax. Lastly add the color, previously rubbed smooth with a little of the mass.

Timber Measurement Table,

Showing the cubical contents (fractions of feet omitted) of round logs, masts, spars, etc. Length of log is shown in left-hand column. Diameter is shown at the head of column. If the desired dimensions are not shown, double some numbers.

| L. ft. | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 |
|--------|----|----|----|----|----|----|----|----|----|----|
| 8... | 4 | 5 | 6 | 7 | 8 | 10 | 11 | 12 | 14 | 16 |
| 9... | 5 | 6 | 7 | 8 | 9 | 11 | 12 | 14 | 16 | 18 |
| 10... | 5 | 7 | 8 | 9 | 10 | 12 | 14 | 16 | 18 | 20 |
| 11... | 6 | 7 | 8 | 10 | 12 | 13 | 16 | 17 | 19 | 22 |
| 12... | 6 | 8 | 9 | 11 | 13 | 15 | 17 | 19 | 21 | 24 |
| 13... | 7 | 9 | 10 | 12 | 14 | 16 | 18 | 20 | 23 | 26 |
| 14... | 7 | 9 | 11 | 13 | 15 | 17 | 19 | 22 | 25 | 28 |
| 15... | 8 | 10 | 12 | 14 | 16 | 18 | 21 | 23 | 26 | 30 |
| 16... | 9 | 11 | 12 | 14 | 17 | 20 | 22 | 25 | 28 | 32 |
| 17... | 9 | 11 | 13 | 16 | 18 | 21 | 24 | 27 | 30 | 33 |
| 18... | 10 | 12 | 14 | 16 | 19 | 22 | 25 | 28 | 32 | 35 |
| 19... | 10 | 13 | 15 | 17 | 21 | 23 | 27 | 30 | 33 | 37 |
| 20... | 11 | 13 | 16 | 18 | 21 | 25 | 28 | 31 | 35 | 39 |
| 21... | 11 | 14 | 16 | 19 | 22 | 26 | 29 | 33 | 37 | 41 |
| 22... | 12 | 15 | 17 | 20 | 23 | 27 | 31 | 35 | 39 | 43 |
| 23... | 12 | 16 | 18 | 21 | 24 | 28 | 32 | 36 | 41 | 45 |
| 24... | 13 | 16 | 19 | 22 | 26 | 30 | 34 | 38 | 42 | 47 |
| 25... | 14 | 17 | 20 | 23 | 27 | 31 | 35 | 39 | 44 | 49 |
| 26... | 14 | 17 | 20 | 24 | 28 | 32 | 36 | 41 | 46 | 51 |
| 27... | 15 | 18 | 21 | 25 | 29 | 33 | 38 | 42 | 48 | 53 |
| 28... | 15 | 18 | 22 | 26 | 30 | 35 | 39 | 44 | 49 | 55 |
| 29... | 16 | 19 | 23 | 27 | 31 | 36 | 41 | 45 | 51 | 57 |
| 30... | 16 | 20 | 24 | 28 | 32 | 37 | 42 | 47 | 53 | 59 |
| 31... | 17 | 20 | 24 | 29 | 33 | 38 | 43 | 48 | 55 | 61 |
| 32... | 17 | 21 | 25 | 29 | 34 | 40 | 45 | 50 | 57 | 63 |
| 33... | 18 | 22 | 26 | 30 | 35 | 41 | 46 | 52 | 58 | 65 |
| 34... | 19 | 22 | 27 | 31 | 36 | 42 | 48 | 53 | 60 | 67 |
| 35... | 19 | 23 | 28 | 32 | 37 | 43 | 49 | 55 | 62 | 69 |
| 36... | 20 | 24 | 28 | 33 | 39 | 44 | 50 | 57 | 64 | 71 |

IMBER MEASUREMENT TABLE—(Continued).

| L. Ft. | 20 | 21 | 22 | 23 | 24 | 25 | 26 | 27 | 28 |
|----------|----|----|----|-----|-----|-----|-----|-----|-----|
| 8 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 32 | 34 |
| 9 | 20 | 22 | 24 | 26 | 28 | 31 | 33 | 36 | 38 |
| 10 | 22 | 24 | 26 | 29 | 31 | 34 | 37 | 40 | 43 |
| 11 | 24 | 26 | 29 | 32 | 35 | 37 | 41 | 43 | 47 |
| 12 | 26 | 29 | 32 | 34 | 38 | 41 | 44 | 47 | 51 |
| 13 | 28 | 31 | 34 | 37 | 41 | 44 | 48 | 51 | 56 |
| 14 | 31 | 34 | 37 | 40 | 44 | 48 | 52 | 55 | 60 |
| 15 | 33 | 36 | 40 | 43 | 47 | 51 | 55 | 59 | 64 |
| 16 | 35 | 38 | 42 | 46 | 50 | 55 | 59 | 63 | 68 |
| 17 | 37 | 41 | 45 | 49 | 53 | 58 | 63 | 68 | 73 |
| 18 | 39 | 43 | 48 | 52 | 57 | 61 | 66 | 72 | 77 |
| 19 | 41 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 81 |
| 20 | 44 | 48 | 53 | 58 | 63 | 68 | 74 | 79 | 85 |
| 21 | 46 | 50 | 55 | 61 | 66 | 71 | 77 | 83 | 90 |
| 22 | 48 | 53 | 58 | 64 | 69 | 75 | 81 | 87 | 94 |
| 23 | 50 | 55 | 61 | 66 | 72 | 78 | 85 | 91 | 98 |
| 24 | 52 | 58 | 63 | 69 | 75 | 82 | 88 | 95 | 102 |
| 25 | 54 | 60 | 66 | 72 | 79 | 85 | 92 | 99 | 107 |
| 26 | 57 | 63 | 69 | 75 | 82 | 89 | 96 | 103 | 111 |
| 27 | 59 | 65 | 71 | 78 | 85 | 92 | 99 | 107 | 115 |
| 28 | 61 | 67 | 74 | 81 | 88 | 95 | 103 | 111 | 120 |
| 29 | 63 | 70 | 77 | 84 | 91 | 99 | 107 | 115 | 124 |
| 30 | 65 | 72 | 79 | 86 | 94 | 102 | 110 | 119 | 128 |
| 31 | 68 | 75 | 82 | 89 | 98 | 106 | 114 | 123 | 132 |
| 32 | 70 | 77 | 85 | 92 | 100 | 109 | 118 | 127 | 137 |
| 33 | 72 | 79 | 87 | 95 | 104 | 112 | 121 | 130 | 141 |
| 34 | 74 | 82 | 90 | 98 | 107 | 116 | 125 | 135 | 145 |
| 35 | 76 | 84 | 93 | 101 | 110 | 119 | 129 | 139 | 149 |
| 36 | 79 | 86 | 95 | 104 | 113 | 123 | 133 | 143 | 154 |

Greatest Known Depth of the Ocean.

The greatest depth which has been ascertained by sounding is 25,720 feet, or 4,620 fathoms. The average depth between 60 degrees north and 60 degrees south is almost three miles.

TIMBER MEASUREMENT TABLE—(Continued).

| L. Ft. | 29 | 30 | 31 | 32 | 33 | 34 | 35 | 36 | 37 |
|----------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| 8 | 37 | 39 | 42 | 45 | 48 | 50 | 53 | 57 | 60 |
| 9 | 41 | 44 | 47 | 50 | 53 | 57 | 60 | 64 | 67 |
| 10 | 46 | 49 | 52 | 56 | 59 | 63 | 67 | 71 | 75 |
| 11 | 50 | 53 | 57 | 61 | 65 | 69 | 73 | 77 | 82 |
| 12 | 55 | 58 | 62 | 67 | 71 | 76 | 80 | 85 | 90 |
| 13 | 60 | 63 | 68 | 72 | 77 | 82 | 87 | 92 | 97 |
| 14 | 64 | 68 | 73 | 78 | 83 | 88 | 94 | 99 | 105 |
| 15 | 69 | 73 | 78 | 84 | 89 | 95 | 100 | 106 | 112 |
| 16 | 73 | 78 | 83 | 89 | 95 | 101 | 107 | 113 | 114 |
| 17 | 78 | 83 | 89 | 95 | 101 | 107 | 114 | 121 | 127 |
| 18 | 82 | 88 | 94 | 100 | 106 | 114 | 120 | 128 | 134 |
| 19 | 87 | 93 | 99 | 106 | 112 | 120 | 127 | 135 | 142 |
| 20 | 91 | 98 | 105 | 112 | 118 | 126 | 134 | 142 | 149 |
| 21 | 96 | 103 | 111 | 117 | 124 | 132 | 140 | 149 | 157 |
| 22 | 101 | 109 | 116 | 123 | 130 | 139 | 147 | 156 | 164 |
| 23 | 105 | 113 | 121 | 128 | 136 | 145 | 154 | 163 | 172 |
| 24 | 111 | 118 | 127 | 134 | 143 | 151 | 160 | 170 | 179 |
| 25 | 116 | 123 | 131 | 139 | 149 | 158 | 167 | 178 | 187 |
| 26 | 120 | 128 | 137 | 145 | 154 | 164 | 174 | 185 | 194 |
| 27 | 125 | 133 | 142 | 151 | 160 | 170 | 180 | 192 | 202 |
| 28 | 129 | 136 | 147 | 156 | 166 | 177 | 187 | 198 | 209 |
| 29 | 134 | 143 | 153 | 162 | 172 | 183 | 194 | 206 | 217 |
| 30 | 138 | 148 | 158 | 168 | 177 | 189 | 200 | 213 | 224 |
| 31 | 143 | 152 | 163 | 173 | 182 | 195 | 207 | 220 | 232 |
| 32 | 148 | 157 | 169 | 178 | 188 | 202 | 214 | 227 | 239 |
| 33 | 152 | 162 | 174 | 184 | 194 | 208 | 220 | 234 | 247 |
| 34 | 157 | 167 | 179 | 190 | 200 | 214 | 227 | 241 | 254 |
| 35 | 161 | 172 | 182 | 196 | 205 | 220 | 234 | 248 | 261 |
| 36 | 166 | 177 | 190 | 201 | 212 | 227 | 240 | 255 | 269 |

The following shows weight required to tear asunder bars one inch square of the following material :

Oak, $5\frac{1}{6}$ tons; Fir, $5\frac{1}{4}$ tons; Cast Iron, $7\frac{3}{4}$ tons; Wrought Iron, 10 tons; Wrought Copper, 15 tons; English Bar Iron, 25 tons; American Iron, $37\frac{1}{2}$ tons; Blistered Steel, $59\frac{1}{2}$ tons.

Logs Reduced to Running Board Measure. Logs Reduced to One Inch Board Measure.

If the log is longer than is contained in the table, take any two lengths.

The first column on the left gives the length of the log in feet. The figures under D denote the diameters of the logs in inches. Fractional parts of inches are not given.

The diameter of timber is usually taken 20 feet from the butt. All logs short of 20 feet, take the diameter at the top or small end.

To find the number of feet of boards which a log will produce when sawed, take the length of feet in the first column on the left hand, and the diameter at the top of the page in inches.

Suppose a log 12 feet long and 24 inches in diameter. In the left hand column is the length, and opposite 12 under 24 is 300, the number of feet of boards in a log of that length and diameter.

| Feet Long. | D. | D. | D. | D. | D. | D. | D. | D. | D. | D. | D. | D. | D. |
|---------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 10.. | 54 | 66 | 76 | 93 | 104 | 107 | 137 | 154 | 179 | 194 | 210 | 237 | 256 |
| 11.. | 59 | 72 | 83 | 102 | 114 | 131 | 151 | 169 | 196 | 213 | 231 | 261 | 270 |
| 12.. | 64 | 78 | 90 | 111 | 124 | 143 | 164 | 184 | 213 | 232 | 252 | 285 | 300 |
| 13.. | 69 | 84 | 97 | 120 | 134 | 154 | 177 | 199 | 231 | 251 | 273 | 308 | 327 |
| 14.. | 74 | 90 | 104 | 129 | 144 | 166 | 191 | 214 | 249 | 270 | 293 | 332 | 350 |
| 15.. | 79 | 96 | 111 | 138 | 154 | 177 | 204 | 229 | 266 | 289 | 314 | 355 | 376 |
| 16.. | 84 | 102 | 118 | 146 | 164 | 189 | 217 | 244 | 284 | 308 | 335 | 379 | 401 |
| 17.. | 89 | 108 | 126 | 155 | 173 | 200 | 231 | 259 | 301 | 327 | 356 | 402 | 426 |
| 18.. | 94 | 114 | 133 | 164 | 183 | 212 | 244 | 274 | 319 | 346 | 377 | 426 | 451 |
| 19.. | 99 | 121 | 140 | 173 | 193 | 223 | 257 | 289 | 336 | 365 | 398 | 449 | 477 |
| 20.. | 104 | 127 | 147 | 182 | 203 | 236 | 271 | 304 | 354 | 384 | 419 | 473 | 501 |
| 21.. | 109 | 133 | 154 | 191 | 213 | 247 | 284 | 319 | 371 | 403 | 440 | 497 | 527 |
| 22.. | 114 | 139 | 161 | 200 | 223 | 259 | 297 | 334 | 389 | 422 | 461 | 520 | 552 |
| 23.. | 119 | 145 | 168 | 209 | 233 | 270 | 311 | 349 | 407 | 441 | 481 | 542 | 568 |
| 24.. | 124 | 151 | 176 | 218 | 243 | 282 | 325 | 364 | 424 | 460 | 502 | 568 | 613 |
| 25.. | 129 | 157 | 183 | 227 | 253 | 293 | 337 | 379 | 442 | 479 | 523 | 591 | 628 |
| 26.. | 134 | 163 | 190 | 236 | 263 | 305 | 350 | 394 | 459 | 498 | 544 | 615 | 653 |
| 27.. | 139 | 169 | 197 | 245 | 273 | 316 | 363 | 409 | 477 | 517 | 565 | 639 | 678 |
| 28.. | 144 | 175 | 204 | 254 | 283 | 328 | 376 | 424 | 494 | 536 | 586 | 663 | 703 |
| 29.. | 149 | 181 | 211 | 263 | 293 | 339 | 389 | 439 | 512 | 555 | 607 | 687 | 728 |
| 30.. | 154 | 187 | 218 | 272 | 303 | 351 | 402 | 454 | 529 | 574 | 628 | 711 | 753 |
| 31.. | 159 | 193 | 225 | 281 | 313 | 362 | 415 | 469 | 547 | 593 | 649 | 735 | 778 |

If we're right we can't be hurt by the truth, and if we ain't right we ought to be hurt righteously.

You show me a man who keeps the Sabbath day holy and I'll show you a man that's a Christian all the week.

LOGS REDUCED TO RUNNING BOARD MEASURE, ETC.—*Continued.*

| Feet Long. | D. 25 | D. 26 | D. 27 | D. 28 | D. 29 | D. 30 | D. 31 | D. 32 | D. 33 | D. 34 | D. 35 | D. 36 |
|---------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| 10... | 283 | 309 | 339 | 359 | 377 | 407 | 440 | 456 | 486 | 496 | 543 | 573 |
| 11... | 311 | 340 | 374 | 396 | 415 | 447 | 484 | 502 | 535 | 546 | 598 | 630 |
| 12... | 340 | 371 | 408 | 432 | 453 | 489 | 528 | 548 | 584 | 596 | 653 | 688 |
| 13... | 369 | 404 | 442 | 469 | 491 | 530 | 572 | 594 | 633 | 646 | 708 | 746 |
| 14... | 397 | 435 | 476 | 505 | 529 | 571 | 618 | 640 | 682 | 696 | 762 | 803 |
| 15... | 426 | 465 | 511 | 541 | 567 | 612 | 662 | 686 | 731 | 746 | 817 | 861 |
| 16... | 455 | 496 | 545 | 578 | 605 | 653 | 706 | 732 | 780 | 796 | 872 | 919 |
| 17... | 483 | 527 | 579 | 614 | 643 | 694 | 751 | 778 | 829 | 846 | 927 | 976 |
| 18... | 512 | 558 | 613 | 650 | 681 | 735 | 795 | 824 | 878 | 896 | 981 | 1034 |
| 19... | 541 | 590 | 647 | 688 | 719 | 776 | 839 | 870 | 927 | 946 | 1036 | 1092 |
| 20... | 569 | 621 | 681 | 724 | 757 | 817 | 884 | 916 | 976 | 996 | 1091 | 1148 |
| 21... | 598 | 652 | 716 | 760 | 796 | 859 | 928 | 962 | 1025 | 1046 | 1146 | 1206 |
| 22... | 627 | 684 | 750 | 796 | 834 | 900 | 972 | 1008 | 1074 | 1096 | 1200 | 1264 |
| 23... | 655 | 715 | 784 | 833 | 872 | 941 | 1017 | 1054 | 1123 | 1146 | 1255 | 1318 |
| 24... | 684 | 746 | 818 | 889 | 910 | 982 | 1061 | 1100 | 1172 | 1196 | 1310 | 1376 |
| 25... | 713 | 777 | 853 | 906 | 948 | 1023 | 1105 | 1146 | 1221 | 1246 | 1365 | 1434 |
| 26... | 742 | 808 | 887 | 942 | 986 | 1064 | 1149 | 1192 | 1270 | 1296 | 1420 | 1492 |
| 27... | 771 | 839 | 921 | 970 | 1024 | 1103 | 1193 | 1238 | 1319 | 1346 | 1475 | 1550 |
| 28... | 800 | 870 | 955 | 1015 | 1062 | 1146 | 1237 | 1284 | 1368 | 1396 | 1530 | 1608 |
| 29... | 829 | 901 | 989 | 1052 | 1100 | 1187 | 1281 | 1330 | 1417 | 1446 | 1585 | 1666 |
| 30... | 858 | 932 | 1023 | 1088 | 1138 | 1228 | 1325 | 1376 | 1466 | 1496 | 1640 | 1724 |
| 31... | 887 | 963 | 1057 | 1125 | 1176 | 1269 | 1369 | 1422 | 1515 | 1546 | 1695 | 1782 |

Stock Brokers' Technicalities.

A **BULL** is one who operates to depress the value of stocks, *that he may buy for a rise.*

A **BEAR** is one who sells stocks for future delivery, which he *does not own* at the time of sale.

A **CORNER** is when the Bears cannot buy or borrow the stock to deliver in fulfillment of their contracts.

OVERLOADED is when the Bulls cannot take and pay for the stock they have purchased.

SHORT is when a person or party sells stocks when they have none, and expect to buy or borrow in time to deliver.

LONG is when a person or party has a plentiful supply of stocks.

A **POOL** or **RING** is a combination formed to control prices.

A broker is said to **CARRY** stocks for his customer when he has bought and is holding it for his account.

A **WASH** is a pretended sale by special agreement between buyer and seller, for the purpose of getting a quotation reported.

A **PUT AND CALL** is when a person gives so much per cent. for the option of buying or selling so much stock on a certain day, at a price fixed the day the option is given.

Board and Plank Measurement at Sight.

This table gives the Sq. Ft. and In. in Board from 6 to 25 inches wide, and from 8 to 36 feet long. If a board be longer than 36 ft., unite two numbers. Thus, if a board is 40 ft. long and 16 in. wide, add 30 and 10 and you have 53 ft. 4 in. For 2 in. plank double the product.

| Feet Long. | 6 in. W. | 7 in. W. | 8 in. W. | 9 in. W. | 10 in. W. | 11 in. W. | 12 in. W. | 13 in. W. | 14 in. W. | 15 in. W. |
|---------------|-------------|-------------|-------------|-------------|--------------|--------------|--------------|--------------|--------------|--------------|
| | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. | ft. in. |
| 8..... | 4 0 | 4 8 | 5 4 | 6 0 | 6 8 | 7 4 | 8 0 | 8 8 | 9 4 | 10 0 |
| 9..... | 4 6 | 5 3 | 6 0 | 6 9 | 7 6 | 8 3 | 9 0 | 9 9 | 10 6 | 11 3 |
| 10..... | 5 0 | 5 10 | 6 8 | 7 6 | 8 4 | 9 2 | 10 0 | 10 10 | 11 8 | 12 6 |
| 11..... | 5 6 | 6 5 | 7 4 | 8 3 | 9 2 | 10 1 | 11 0 | 11 11 | 12 10 | 12 9 |
| 12..... | 6 0 | 7 0 | 8 0 | 9 0 | 10 0 | 11 0 | 12 0 | 13 0 | 14 0 | 15 0 |
| 13..... | 6 6 | 7 7 | 8 8 | 9 9 | 10 10 | 11 11 | 12 13 | 14 1 | 15 2 | 16 3 |
| 14..... | 7 0 | 8 2 | 9 4 | 10 6 | 11 8 | 12 10 | 14 0 | 15 2 | 16 4 | 17 6 |
| 15..... | 7 6 | 8 9 | 10 0 | 11 3 | 12 6 | 13 9 | 15 0 | 16 3 | 17 6 | 18 9 |
| 16..... | 8 0 | 9 4 | 10 8 | 12 0 | 13 4 | 14 8 | 16 0 | 17 4 | 18 8 | 20 0 |
| 17..... | 8 6 | 9 11 | 11 0 | 12 9 | 14 2 | 15 7 | 17 0 | 18 5 | 19 10 | 21 3 |
| 18..... | 9 0 | 10 6 | 12 0 | 13 6 | 15 0 | 16 6 | 18 0 | 19 6 | 21 0 | 22 6 |
| 19..... | 9 6 | 11 1 | 12 8 | 14 3 | 15 10 | 17 5 | 19 0 | 20 7 | 22 2 | 23 9 |
| 20..... | 10 0 | 11 8 | 13 4 | 15 0 | 16 8 | 18 4 | 20 0 | 21 8 | 23 4 | 25 0 |
| 21..... | 10 6 | 12 3 | 14 0 | 15 9 | 17 6 | 19 3 | 21 0 | 22 9 | 24 6 | 26 3 |
| 22..... | 11 0 | 12 10 | 14 8 | 16 6 | 18 4 | 20 2 | 22 0 | 23 10 | 25 8 | 27 6 |
| 23..... | 11 6 | 13 5 | 15 4 | 17 3 | 19 2 | 21 1 | 23 0 | 24 11 | 26 10 | 28 9 |
| 24..... | 12 0 | 14 0 | 16 0 | 18 0 | 20 0 | 22 0 | 24 0 | 26 0 | 28 0 | 30 0 |
| 25..... | 12 6 | 14 7 | 16 8 | 18 9 | 20 10 | 22 11 | 25 0 | 27 1 | 29 2 | 31 3 |
| 26..... | 13 0 | 15 2 | 17 4 | 19 6 | 21 8 | 23 10 | 26 0 | 28 2 | 30 4 | 32 6 |
| 27..... | 13 6 | 15 9 | 18 0 | 20 3 | 22 6 | 24 9 | 27 0 | 29 3 | 31 6 | 33 9 |
| 28..... | 14 0 | 16 4 | 18 8 | 21 0 | 23 4 | 25 8 | 28 0 | 30 4 | 32 8 | 35 0 |
| 29..... | 14 6 | 16 11 | 19 4 | 21 9 | 24 2 | 27 7 | 29 0 | 31 5 | 33 10 | 36 3 |
| 30..... | 15 0 | 17 6 | 20 0 | 22 6 | 25 0 | 27 6 | 30 0 | 32 6 | 35 0 | 37 6 |
| 31..... | 15 6 | 18 1 | 20 8 | 23 3 | 25 10 | 28 5 | 31 0 | 33 7 | 36 2 | 38 9 |
| 32..... | 16 0 | 18 8 | 21 4 | 24 0 | 26 8 | 29 4 | 32 0 | 34 8 | 37 4 | 40 0 |
| 33..... | 16 6 | 19 3 | 22 0 | 24 9 | 27 6 | 30 3 | 33 0 | 35 9 | 38 6 | 41 3 |
| 34..... | 17 0 | 19 10 | 22 8 | 25 6 | 28 4 | 31 2 | 34 0 | 36 10 | 39 8 | 42 6 |
| 35..... | 17 6 | 20 5 | 23 4 | 26 3 | 29 2 | 32 1 | 35 0 | 37 11 | 40 10 | 43 9 |
| 36..... | 18 0 | 21 0 | 24 0 | 27 0 | 30 0 | 33 0 | 36 0 | 39 0 | 42 0 | 45 0 |

The infidelity that hurts is the infidelity of the man who makes out that he's on God's side, and then won't live up.

Find me a man preparing himself to hear the gospel and **I can** show you a man that is going to be benefited by the gospel.

BOARD AND PLANK MEASUREMENT.—*Continued.*

| Feet Long. | 16 in. W. | | 17 in. W. | | 18 in. W. | | 19 in. W. | | 20 in. W. | | 21 in. W. | | 22 in. W. | | 23 in. W. | | 24 in. W. | | 25 in. W. | |
|---------------|--------------|---|--------------|----|--------------|---|--------------|----|--------------|---|--------------|---|--------------|----|--------------|----|--------------|---|--------------|----|
| | ft. in. | | ft. in. | | ft. in. | | ft. in. | | ft. in. | | ft. in. | | ft. in. | | ft. in. | | ft. in. | | ft. in. | |
| 8..... | 10 | 8 | 11 | 4 | 12 | 0 | 12 | 8 | 13 | 4 | 14 | 0 | 14 | 8 | 15 | 4 | 16 | 0 | 16 | 8 |
| 9..... | 12 | 0 | 12 | 9 | 13 | 6 | 14 | 3 | 15 | 0 | 15 | 9 | 16 | 6 | 17 | 3 | 18 | 0 | 18 | 9 |
| 10..... | 13 | 4 | 14 | 2 | 15 | 0 | 13 | 10 | 16 | 8 | 17 | 6 | 18 | 4 | 19 | 2 | 20 | 0 | 20 | 10 |
| 11..... | 14 | 8 | 15 | 7 | 16 | 6 | 17 | 5 | 18 | 4 | 19 | 3 | 20 | 2 | 21 | 1 | 22 | 0 | 22 | 11 |
| 12..... | 16 | 0 | 17 | 0 | 18 | 0 | 19 | 0 | 20 | 0 | 21 | 0 | 22 | 0 | 23 | 0 | 24 | 0 | 25 | 0 |
| 13..... | 17 | 4 | 18 | 5 | 19 | 6 | 20 | 7 | 21 | 8 | 22 | 9 | 23 | 10 | 24 | 11 | 26 | 0 | 27 | 1 |
| 14..... | 18 | 8 | 19 | 10 | 21 | 0 | 22 | 2 | 23 | 4 | 24 | 6 | 25 | 8 | 26 | 10 | 28 | 0 | 29 | 2 |
| 15..... | 20 | 0 | 21 | 3 | 22 | 6 | 23 | 9 | 25 | 0 | 26 | 3 | 27 | 6 | 28 | 9 | 30 | 0 | 31 | 3 |
| 16..... | 21 | 4 | 22 | 8 | 24 | 0 | 25 | 4 | 26 | 8 | 28 | 0 | 29 | 4 | 30 | 8 | 32 | 0 | 33 | 4 |
| 17..... | 22 | 8 | 24 | 1 | 25 | 6 | 26 | 11 | 28 | 4 | 29 | 9 | 31 | 2 | 32 | 7 | 34 | 0 | 35 | 5 |
| 18..... | 24 | 0 | 25 | 6 | 27 | 0 | 28 | 6 | 30 | 0 | 31 | 6 | 33 | 0 | 34 | 6 | 36 | 0 | 37 | 6 |
| 19..... | 25 | 4 | 26 | 11 | 28 | 6 | 30 | 1 | 31 | 8 | 33 | 3 | 34 | 10 | 36 | 5 | 38 | 0 | 39 | 7 |
| 20..... | 26 | 8 | 28 | 4 | 30 | 0 | 31 | 8 | 33 | 4 | 35 | 0 | 36 | 8 | 38 | 4 | 40 | 0 | 41 | 8 |
| 21..... | 28 | 0 | 29 | 9 | 31 | 6 | 33 | 3 | 35 | 0 | 36 | 9 | 38 | 6 | 40 | 3 | 42 | 0 | 43 | 9 |
| 22..... | 29 | 4 | 31 | 2 | 33 | 0 | 34 | 10 | 36 | 8 | 38 | 6 | 40 | 4 | 42 | 2 | 44 | 0 | 45 | 10 |
| 23..... | 30 | 8 | 32 | 7 | 34 | 6 | 36 | 5 | 38 | 4 | 40 | 3 | 42 | 2 | 34 | 1 | 46 | 0 | 47 | 11 |
| 24..... | 33 | 0 | 34 | 0 | 36 | 0 | 38 | 0 | 40 | 0 | 42 | 0 | 44 | 0 | 46 | 4 | 48 | 0 | 50 | 0 |
| 25..... | 34 | 4 | 35 | 5 | 37 | 6 | 39 | 7 | 41 | 8 | 43 | 9 | 45 | 10 | 47 | 11 | 50 | 0 | 52 | 1 |
| 26..... | 35 | 8 | 36 | 10 | 39 | 0 | 41 | 2 | 43 | 4 | 45 | 6 | 47 | 8 | 49 | 10 | 52 | 0 | 54 | 2 |
| 27..... | 36 | 0 | 38 | 3 | 40 | 6 | 42 | 9 | 45 | 0 | 47 | 3 | 49 | 6 | 51 | 9 | 54 | 0 | 56 | 3 |
| 28..... | 37 | 4 | 39 | 8 | 42 | 0 | 44 | 4 | 46 | 8 | 49 | 0 | 51 | 4 | 53 | 8 | 56 | 0 | 58 | 4 |
| 29..... | 38 | 8 | 41 | 1 | 43 | 6 | 45 | 11 | 48 | 4 | 50 | 9 | 53 | 2 | 55 | 7 | 58 | 0 | 60 | 5 |
| 30..... | 40 | 0 | 42 | 6 | 45 | 0 | 47 | 6 | 50 | 0 | 51 | 6 | 55 | 0 | 57 | 6 | 60 | 0 | 62 | 6 |

Famous Destructive Fires.

New York, Dec., 1835—over five hundred buildings and \$20,000,000 worth of property destroyed; Sept. 6, 1839—\$10,000,000 worth of property destroyed. Pittsburg, April 10, 1845—one thousand buildings burnt; loss, \$6,000,000. St. Louis, May 4, 1851—a large portion of the city burned; loss, \$11,000,000. Portland, Me., July 4, 1866—almost entirely destroyed; loss, \$15,000,000. Chicago, Ill., Oct. 8-9, 1871—over 2,000 acres burnt over; estimated loss, \$195,000,000; July 14, 1874, another great fire destroyed \$4,000,000 worth of property. Boston, Mass., Nov. 9, 1872—nearly 450 buildings destroyed; loss, over \$73,000,000. St. John, N. B., June 21, 1877—loss, \$12,500,000.

WOOD AND BARK MEASUREMENT AT SIGHT.

The Cord of Wood or Bark is 8 feet long, 4 feet high, and 4 feet wide. as established by law in most of the States and the Dominion of Canada. If the Wood is 8 feet long, double the product. Fractions of feet are omitted in the Table. Price will be found heading the columns, number of feet in the left-hand column.

| Ft. | \$1 50 | \$1 75 | \$2 00 | \$2 25 | \$2 50 | \$2 75 | \$3 00 | \$3 25 | \$3 50 |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 01 | 01 | 01 | 02 | 02 | 02 | 02 | 02 | 02 |
| 2 | 02 | 02 | 03 | 03 | 04 | 04 | 05 | 05 | 05 |
| 3 | 03 | 04 | 04 | 05 | 06 | 06 | 07 | 07 | 08 |
| 4 | 05 | 06 | 06 | 07 | 08 | 09 | 09 | 10 | 10 |
| 5 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 13 |
| 6 | 07 | 08 | 09 | 11 | 12 | 13 | 14 | 15 | 16 |
| 7 | 08 | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 19 |
| 8 | 09 | 11 | 12 | 14 | 16 | 18 | 19 | 20 | 21 |
| 16 | 19 | 22 | 25 | 28 | 31 | 35 | 37 | 40 | 43 |
| 24 | 28 | 33 | 37 | 42 | 47 | 52 | 56 | 61 | 65 |
| 32 | 38 | 44 | 50 | 56 | 63 | 69 | 75 | 81 | 87 |
| 40 | 47 | 55 | 63 | 70 | 78 | 86 | 94 | 1 02 | 1 09 |
| 48 | 56 | 66 | 75 | 84 | 94 | 1 03 | 1 12 | 1 22 | 1 31 |
| 56 | 61 | 77 | 88 | 98 | 1 09 | 1 20 | 1 13 | 1 42 | 1 53 |
| 64 | 75 | 88 | 1 00 | 1 13 | 1 25 | 1 38 | 1 50 | 1 62 | 1 75 |
| 72 | 84 | 98 | 1 13 | 1 27 | 1 41 | 1 55 | 1 69 | 1 83 | 1 96 |
| 80 | 94 | 1 09 | 1 25 | 1 41 | 1 56 | 1 72 | 1 88 | 2 03 | 2 18 |
| 84 | 98 | 1 15 | 1 31 | 1 48 | 1 64 | 1 81 | 1 97 | 2 13 | 2 29 |
| 88 | 1 03 | 1 20 | 1 38 | 1 55 | 1 72 | 1 89 | 2 06 | 2 23 | 2 40 |
| 92 | 1 08 | 1 26 | 1 44 | 1 62 | 1 80 | 1 98 | 2 15 | 2 33 | 2 51 |
| 96 | 1 13 | 1 31 | 1 50 | 1 69 | 1 88 | 2 06 | 2 25 | 2 44 | 2 62 |
| 104 | 1 22 | 1 42 | 1 63 | 1 83 | 2 03 | 2 23 | 2 44 | 2 64 | 2 84 |
| 112 | 1 31 | 1 53 | 1 75 | 1 97 | 2 19 | 2 41 | 2 62 | 2 84 | 3 06 |
| 120 | 1 41 | 1 64 | 1 88 | 2 11 | 2 34 | 2 58 | 2 81 | 3 05 | 3 28 |
| 128 | 1 50 | 1 75 | 2 00 | 2 25 | 2 50 | 2 75 | 3 00 | 3 25 | 3 50 |

WOOD AND BARK MEASUREMENT AT SIGHT

(Continued.)

| Pl. | \$4 00 | \$4 50 | \$5 00 | \$5 50 | \$6 00 | \$6 50 | \$7 00 | \$7 50 | \$8 00 |
|-----|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| 1 | 03 | 03 | 03 | 04 | 04 | 05 | 05 | 05 | 06 |
| 2 | 06 | 07 | 07 | 08 | 09 | 10 | 10 | 11 | 12 |
| 3 | 09 | 10 | 11 | 12 | 14 | 15 | 16 | 17 | 18 |
| 4 | 12 | 14 | 15 | 17 | 18 | 20 | 21 | 23 | 25 |
| 5 | 15 | 17 | 19 | 21 | 23 | 25 | 27 | 29 | 31 |
| 6 | 18 | 21 | 23 | 25 | 28 | 30 | 32 | 35 | 37 |
| 7 | 21 | 24 | 27 | 30 | 32 | 35 | 38 | 41 | 43 |
| 8 | 24 | 28 | 31 | 34 | 37 | 40 | 43 | 46 | 50 |
| 86 | 49 | 56 | 62 | 68 | 74 | 81 | 87 | 93 | 1 00 |
| 84 | 75 | 84 | 93 | 1 03 | 1 12 | 1 22 | 1 31 | 1 41 | 1 50 |
| 32 | 1 00 | 1 12 | 1 25 | 1 37 | 1 50 | 1 62 | 1 75 | 1 87 | 2 00 |
| 40 | 1 25 | 1 40 | 1 56 | 1 72 | 1 87 | 2 03 | 2 19 | 2 34 | 2 50 |
| 48 | 1 50 | 1 68 | 1 87 | 2 06 | 2 25 | 2 44 | 2 62 | 2 81 | 3 00 |
| 56 | 1 75 | 1 96 | 2 18 | 2 40 | 2 62 | 2 84 | 3 06 | 3 28 | 3 50 |
| 64 | 2 00 | 2 25 | 2 50 | 2 75 | 3 00 | 3 25 | 3 50 | 3 75 | 4 00 |
| 72 | 2 25 | 2 53 | 2 81 | 3 09 | 3 37 | 3 65 | 3 93 | 4 28 | 4 50 |
| 80 | 2 50 | 2 81 | 3 13 | 3 43 | 3 74 | 4 06 | 4 37 | 4 68 | 5 00 |
| 84 | 2 62 | 2 95 | 3 28 | 3 60 | 3 94 | 4 26 | 4 59 | 4 92 | 5 25 |
| 88 | 2 75 | 3 09 | 3 43 | 3 78 | 4 12 | 4 47 | 4 81 | 5 16 | 5 50 |
| 92 | 2 87 | 3 23 | 3 59 | 3 95 | 4 30 | 4 67 | 5 03 | 5 40 | 5 75 |
| 96 | 3 00 | 3 37 | 3 75 | 4 12 | 4 49 | 4 87 | 5 25 | 5 62 | 6 00 |
| 104 | 3 25 | 3 65 | 4 05 | 4 47 | 4 87 | 5 28 | 5 69 | 6 09 | 6 50 |
| 112 | 3 50 | 3 93 | 4 38 | 4 80 | 5 24 | 5 69 | 6 12 | 6 56 | 7 00 |
| 120 | 3 75 | 4 21 | 4 68 | 5 15 | 5 62 | 6 09 | 6 56 | 7 03 | 7 50 |
| 128 | 4 00 | 4 50 | 5 00 | 5 50 | 6 00 | 6 50 | 7 00 | 7 50 | 8 00 |

The Wedding Anniversary.

| | |
|-------------------------|-----------------|
| Fifth year..... | Wooden Wedding |
| Tenth year..... | Tin. Wedding |
| Fifteenth year..... | Crystal Wedding |
| Twentieth year..... | China Wedding |
| Twenty-fifth year..... | Silver Wedding |
| Thirtieth year..... | Pearl Wedding |
| Fortieth year..... | Ruby Wedding |
| Fiftieth year..... | Golden Wedding |
| Seventy-fifth year..... | Diamond Wedding |

Table for Engineers and Machinists.

SIZE AND STRENGTH OF CAST IRON COLUMNS. IRON 1 IN. THICK.

| Diameter in inches. | HEIGHT IN FEET. | | | | | | | | | | |
|------------------------|-----------------|------|------|------|------|------|------|------|------|------|------|
| | 4 | 6 | 8 | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 |
| | LOAD IN CWT. | | | | | | | | | | |
| 2 | 72 | 60 | 49 | 40 | 32 | 26 | 22 | 18 | 15 | 13 | 11 |
| 2½ | 119 | 105 | 91 | 77 | 65 | 55 | 47 | 40 | 34 | 29 | 25 |
| 3 | 178 | 143 | 145 | 128 | 111 | 97 | 84 | 73 | 64 | 56 | 49 |
| 3½ | 247 | 232 | 214 | 191 | 172 | 156 | 135 | 119 | 106 | 94 | 83 |
| 4 | 326 | 318 | 288 | 266 | 242 | 220 | 198 | 178 | 160 | 144 | 131 |
| 4½ | 418 | 400 | 379 | 354 | 327 | 301 | 275 | 251 | 229 | 208 | 189 |
| 5 | 522 | 501 | 479 | 452 | 427 | 394 | 365 | 337 | 310 | 285 | 262 |
| 6 | 607 | 592 | 573 | 550 | 525 | 497 | 469 | 440 | 413 | 386 | 360 |
| 7 | 1032 | 1013 | 989 | 959 | 924 | 887 | 848 | 808 | 765 | 725 | 686 |
| 8 | 1333 | 1315 | 1289 | 1259 | 1224 | 1185 | 1142 | 1097 | 1052 | 1005 | 959 |
| 9 | 1716 | 1697 | 1672 | 1640 | 1603 | 1561 | 1515 | 1461 | 1411 | 1364 | 1311 |
| 10 | 2119 | 2100 | 2077 | 2045 | 2007 | 1964 | 1916 | 1865 | 1811 | 1755 | 1697 |
| 11 | 2570 | 2550 | 2520 | 2490 | 2450 | 2410 | 2358 | 2305 | 2248 | 2189 | 2127 |
| 12 | 3050 | 3040 | 3020 | 2970 | 2930 | 2890 | 2830 | 2780 | 2730 | 2670 | 2600 |

WEIGHTS OF CORDWOOD.

| | <i>Lbs.</i> | <i>Carbon.</i> |
|---------------------------|-------------|----------------|
| One cord of Hickory | 4,468 | 100 |
| “ Hard Maple | 2,864 | 58 |
| “ Beech | 3,234 | 64 |
| “ Ash | 3,449 | 79 |
| “ Birch | 2,368 | 49 |
| “ Pitch Pine | 1,903 | 43 |
| “ Canada Pine | 1,870 | 42 |
| “ Yellow Oak | 2,920 | 61 |
| “ White Oak | 1,870 | 81 |
| “ Lombardy Poplar | 1,775 | 41 |
| “ Red Oak | 3,255 | 70 |

READY RECKONER TABLE.

For computing Wages, Rent, Board, etc. The sum will be found heading the columns, and the days and weeks on the extreme left-hand column. If the desired sum is not in the table, double or treble two or three suitable numbers.

| TIME. | | \$2.50 | \$2.75 | \$3.00 | \$3.25 | \$3.50 | \$3.75 | \$4.00 | \$4.25 | \$4.50 | \$4.75 |
|--------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Days. | 1 | .36 | .39 | .43 | .44 | .50 | .53 | .57 | .61 | .64 | .68 |
| | 2 | .72 | .78 | .86 | .93 | 1.00 | 1.07 | 1.14 | 1.21 | 1.28 | 1.36 |
| | 3 | 1.08 | 1.17 | 1.29 | 1.39 | 1.50 | 1.61 | 1.71 | 1.82 | 1.93 | 2.03 |
| | 4 | 1.44 | 1.56 | 1.71 | 1.86 | 2.00 | 2.14 | 2.28 | 2.43 | 2.57 | 2.71 |
| | 5 | 1.80 | 1.95 | 2.14 | 2.32 | 2.50 | 2.68 | 2.86 | 3.03 | 3.21 | 3.39 |
| | 6 | 2.15 | 2.34 | 2.57 | 2.78 | 3.00 | 3.21 | 3.43 | 3.64 | 3.86 | 4.07 |
| | 1 | 2.50 | 2.75 | 3.00 | 3.25 | 3.50 | 3.75 | 4.00 | 4.25 | 4.50 | 4.75 |
| | 2 | 5.00 | 5.50 | 6.00 | 6.50 | 7.00 | 7.50 | 8.00 | 8.50 | 9.00 | 9.50 |
| | 3 | 7.50 | 8.25 | 9.00 | 9.75 | 10.50 | 11.25 | 12.00 | 12.75 | 13.50 | 14.25 |
| | 4 | 10.00 | 11.00 | 12.00 | 13.00 | 14.00 | 15.00 | 16.00 | 17.00 | 18.00 | 19.00 |
| Weeks. | 5 | 12.50 | 13.75 | 15.00 | 16.25 | 17.50 | 18.75 | 20.00 | 21.25 | 22.50 | 23.75 |

| TIME. | | \$5.00 | \$5.25 | \$5.50 | \$5.75 | \$6.00 | \$6.25 | \$6.50 | \$6.75 | \$7.00 | \$8.00 |
|-------|---|--------|--------|--------|--------|--------|--------|--------|--------|--------|--------|
| Days. | 1 | .71 | .75 | .79 | .82 | .86 | .89 | .93 | .96 | 1.00 | 1.14 |
| | 2 | 1.43 | 1.50 | 1.58 | 1.64 | 1.72 | 1.78 | 1.86 | 1.92 | 2.00 | 2.28 |
| | 3 | 2.14 | 2.25 | 2.37 | 2.46 | 2.53 | 2.67 | 2.79 | 2.88 | 3.00 | 3.52 |
| | 4 | 2.86 | 3.00 | 3.15 | 3.28 | 3.44 | 3.56 | 3.72 | 3.84 | 4.00 | 4.26 |
| | 5 | 3.57 | 3.75 | 3.94 | 4.10 | 4.30 | 4.45 | 4.65 | 4.80 | 5.00 | 5.72 |
| | 6 | 4.28 | 4.50 | 4.73 | 4.92 | 5.16 | 5.34 | 5.58 | 5.76 | 6.00 | 6.86 |
| | 1 | 5.00 | 5.25 | 5.50 | 5.75 | 6.00 | 6.25 | 6.50 | 6.75 | 7.00 | 8.00 |
| | 2 | 10.00 | 10.50 | 11.00 | 11.50 | 12.00 | 12.50 | 13.00 | 13.50 | 14.00 | 16.00 |
| | 3 | 15.00 | 15.75 | 16.50 | 17.25 | 18.00 | 18.75 | 19.50 | 20.25 | 21.00 | 24.00 |
| | 4 | 20.00 | 21.00 | 22.00 | 23.00 | 24.00 | 25.00 | 26.00 | 27.00 | 28.00 | 32.00 |
| Week. | 5 | 25.00 | 26.25 | 27.50 | 28.75 | 30.00 | 31.25 | 32.50 | 33.50 | 35.00 | 40.00 |

WEIGHT OF LEAD PIPE—DIFFERENT SIZES.

| Caliber. | AAA Weight per foot. | | AA Weight per foot. | | A Weight per foot. | | B Weight per foot. | | C Weight per foot. | | D Weight per foot. | | D Light Weight per foot. | | E Weight per foot. | | E Light Weight per foot. | |
|----------------|----------------------------|-----|---------------------------|-----|--------------------------|-----|--------------------------|-----|--------------------------|-----|--------------------------|-----|--------------------------------|-------|--------------------------|-------|--------------------------------|-----|
| In. | lb. | oz. | lb. | oz. | lb. | oz. | lb. | oz. | lb. | oz. | lb. | oz. | lb. | oz. | lb. | oz. | lb. | oz. |
| $\frac{3}{8}$ | 1 | 8 | 1 | 5 | 1 | 2 | 1 | 0 | 0 | 13 | 0 | 10 | ..... | 0 | 8 | ..... | ..... |  |
| $\frac{1}{2}$ | 3 | 0 | 2 | 0 | 1 | 12 | 1 | 4 | 1 | 0 | 0 | 13 | ..... | 0 | 11 | 0 | 9 | |
| $\frac{5}{8}$ | 3 | 8 | 2 | 12 | 2 | 8 | 2 | 0 | 1 | 12 | 1 | 8 | 1 | 4 | 1 | 0 | 1 | 12 |
| $\frac{3}{4}$ | 4 | 8 | 3 | 8 | 3 | 0 | 2 | 4 | 2 | 0 | 1 | 12 | 1 | 8 | 1 | 4 | 1 | 0 |
| 1 | 6 | 0 | 4 | 12 | 4 | 0 | 3 | 4 | 2 | 8 | 2 | 0 | ..... | 1 | 8 | ..... | ..... |  |
| $1\frac{1}{4}$ | 6 | 12 | 5 | 12 | 4 | 12 | 3 | 12 | 3 | 0 | 2 | 8 | ..... | 2 | 0 | ..... | ..... |  |
| $1\frac{1}{2}$ | 9 | 0 | 8 | 0 | 6 | 4 | 5 | 0 | 4 | 4 | 3 | 8 | ..... | 3 | 4 | ..... | ..... |  |
| 2 | 10 | 12 | 9 | 0 | 7 | 0 | 6 | 0 | 5 | 4 | 4 | 0 | ..... | ..... | ..... | ..... | ..... |  |

WEIGHT OF IRON PER FOOT.

254

| ROUND. | | SQUARE. | | FLAT. | | FLAT. | | FLAT. | |
|----------------|---------|----------------|---------|-----------------------------------|---------|-----------------------------------|---------|-----------------------------------|---------|
| Size. | Weight. | Size. | Weight. | Size. | Weight. | Size. | Weight. | Size. | Weight. |
| $\frac{1}{4}$ | .163 | $\frac{1}{4}$ | .208 | $1 \times \frac{1}{4}$ | .833 | $1\frac{3}{4} \times \frac{1}{2}$ | 2.91 | $4\frac{1}{2} \times \frac{3}{4}$ | 11.25 |
| $\frac{3}{8}$ | .368 | $\frac{3}{8}$ | .468 | $1\frac{1}{8} \times \frac{1}{4}$ | .937 | $2 \times \frac{1}{2}$ | 3.33 | $5 \times \frac{3}{4}$ | 12.50 |
| $\frac{1}{2}$ | .654 | $\frac{1}{2}$ | .833 | $1\frac{1}{4} \times \frac{1}{4}$ | 1.04 | $2\frac{1}{4} \times \frac{1}{2}$ | 3.74 | $5\frac{1}{2} \times \frac{3}{4}$ | 13.75 |
| $\frac{5}{8}$ | 1.02 | $\frac{5}{8}$ | 1.30 | $1\frac{3}{8} \times \frac{1}{4}$ | 1.14 | $2\frac{1}{2} \times \frac{1}{2}$ | 4.16 | $6 \times \frac{3}{4}$ | 15.00 |
| $\frac{3}{4}$ | 1.47 | $\frac{3}{4}$ | 1.87 | $1\frac{1}{2} \times \frac{1}{4}$ | 1.25 | $2\frac{3}{4} \times \frac{1}{2}$ | 4.58 | $1 \times \frac{7}{8}$ | 2.91 |
| $\frac{7}{8}$ | 2.00 | $\frac{7}{8}$ | 2.55 | $1\frac{3}{4} \times \frac{1}{4}$ | 1.45 | $3 \times \frac{1}{2}$ | 5.00 | $1\frac{1}{8} \times \frac{7}{8}$ | 3.28 |
| 1 | 2.61 | 1 | 3.33 | $2 \times \frac{1}{4}$ | 1.66 | $3\frac{1}{2} \times \frac{1}{2}$ | 5.83 | $1\frac{1}{4} \times \frac{7}{8}$ | 3.6 |
| $1\frac{1}{8}$ | 3.31 | $1\frac{1}{8}$ | 4.21 | $2\frac{1}{4} \times \frac{1}{4}$ | 1.87 | $4 \times \frac{1}{2}$ | 6.66 | $1\frac{3}{8} \times \frac{7}{8}$ | 4.01 |
| $1\frac{1}{4}$ | 4.09 | $1\frac{1}{4}$ | 5.20 | $2\frac{1}{2} \times \frac{1}{4}$ | 2.08 | $5 \times \frac{1}{2}$ | 8.33 | $1\frac{1}{2} \times \frac{7}{8}$ | 4.37 |
| $1\frac{3}{8}$ | 4.95 | $1\frac{3}{8}$ | 6.30 | $2\frac{3}{4} \times \frac{1}{4}$ | 2.29 | $6 \times \frac{1}{2}$ | 10.00 | $1\frac{3}{4} \times \frac{7}{8}$ | 5.10 |
| $1\frac{1}{2}$ | 5.89 | $1\frac{1}{2}$ | 7.50 | $3 \times \frac{1}{4}$ | 2.50 | $1 \times \frac{5}{8}$ | 2.08 | $2 \times \frac{7}{8}$ | 5.83 |
| $1\frac{5}{8}$ | 6.91 | $1\frac{5}{8}$ | 8.80 | $3\frac{1}{4} \times \frac{1}{4}$ | 2.70 | $1\frac{1}{8} \times \frac{5}{8}$ | 2.34 | $2\frac{1}{4} \times \frac{7}{8}$ | 6.56 |
| $1\frac{3}{4}$ | 8.01 | $1\frac{3}{4}$ | 10.20 | $3\frac{1}{2} \times \frac{1}{4}$ | 2.91 | $1\frac{1}{4} \times \frac{5}{8}$ | 2.60 | $2\frac{1}{2} \times \frac{7}{8}$ | 7.29 |
| $1\frac{7}{8}$ | 9.20 | $1\frac{7}{8}$ | 11.71 | $3\frac{3}{4} \times \frac{1}{4}$ | 3.12 | $1\frac{3}{8} \times \frac{5}{8}$ | 2.86 | $2\frac{3}{4} \times \frac{7}{8}$ | 8.02 |
| 2 | 10.47 | 2 | 13.33 | $4 \times \frac{1}{4}$ | 3.33 | $1\frac{1}{2} \times \frac{5}{8}$ | 3.12 | $3 \times \frac{7}{8}$ | 8.75 |
| $2\frac{1}{8}$ | 11.82 | $2\frac{1}{8}$ | 15.05 | $4\frac{1}{2} \times \frac{1}{4}$ | 3.75 | $1\frac{3}{4} \times \frac{5}{8}$ | 3.64 | $3\frac{1}{2} \times \frac{7}{8}$ | 10.20 |
| $2\frac{1}{4}$ | 13.25 | $2\frac{1}{4}$ | 16.87 | $5 \times \frac{1}{4}$ | 4.17 | $2 \times \frac{5}{8}$ | 4.16 | $4 \times \frac{7}{8}$ | 11.66 |
| $2\frac{3}{8}$ | 14.76 | $2\frac{3}{8}$ | 20.80 | $6 \times \frac{1}{4}$ | 5.00 | $2\frac{1}{4} \times \frac{5}{8}$ | 4.68 | $4\frac{1}{2} \times \frac{7}{8}$ | 13.12 |
| $2\frac{1}{2}$ | 16.36 | $2\frac{1}{2}$ | 25.20 | $1 \times \frac{3}{8}$ | 1.25 | $2\frac{1}{2} \times \frac{5}{8}$ | 5.20 | $5 \times \frac{7}{8}$ | 14.58 |
| $2\frac{7}{8}$ | 19.79 | 3 | 30.00 | $1\frac{1}{8} \times \frac{3}{8}$ | 1.40 | $2\frac{3}{4} \times \frac{5}{8}$ | 5.72 | $5\frac{1}{2} \times \frac{7}{8}$ | 16.04 |
| 3 | 23.56 | $3\frac{1}{8}$ | 32.55 | $1\frac{1}{4} \times \frac{3}{8}$ | 1.56 | $3 \times \frac{5}{8}$ | 6.25 | $6 \times \frac{7}{8}$ | 17.50 |
| $3\frac{1}{4}$ | 25.56 | $3\frac{1}{4}$ | 35.20 | $1\frac{3}{8} \times \frac{3}{8}$ | 1.71 | $3\frac{1}{2} \times \frac{5}{8}$ | 7.29 | $1\frac{1}{8} \times 1$ | 3.75 |
| $3\frac{3}{4}$ | 27.65 | $3\frac{3}{4}$ | 37.96 | $1\frac{1}{2} \times \frac{3}{8}$ | 1.87 | $4 \times \frac{5}{8}$ | 8.33 | $1\frac{1}{4} \times 1$ | 4.16 |

| | | | | | | | | | | |
|-------|--------|-------|--------|---------------|------|-------|-------------|-------|-----------|-------|
| 3 1/8 | 29.83 | 3 1/8 | 40.80 | 1 1/4 x 3/4 | 8.18 | 5 | 2 1/8 | 10.41 | 1 1/4 x 1 | 4.9 |
| 3 1/4 | 32.07 | 3 1/4 | 46.87 | 2 x 3/4 | 8.50 | 6 | 2 3/8 | 12.50 | 1 1/2 x 1 | 5.00 |
| 4 | 36.81 | 4 | 53.33 | 2 1/4 x 3/4 | 2.81 | 1 | 1 x 3/4 | 2.50 | 1 3/4 x 1 | 5.81 |
| 4 1/8 | 41.88 | 4 1/8 | 60.20 | 2 1/2 x 3/4 | 3.12 | 1 | 1 1/8 x 3/4 | 2.81 | 2 x 1 | 6.66 |
| 4 1/4 | 44.54 | 4 1/4 | 67.50 | 2 3/4 x 3/4 | 3.43 | 1 1/8 | 1 1/4 x 3/4 | 3.12 | 2 1/2 x 1 | 7.50 |
| 4 3/8 | 47.28 | 4 3/8 | 75.20 | 3 x 3/4 | 3.75 | 1 1/4 | 1 1/2 x 3/4 | 3.43 | 2 3/4 x 1 | 8.33 |
| 4 1/2 | 50.11 | 5 | 83.33 | 3 1/2 x 3/4 | 4.37 | 1 1/2 | 1 3/4 x 3/4 | 3.75 | 3 x 1 | 9.16 |
| 4 3/4 | 53.01 | 5 1/4 | 93.20 | 4 x 3/4 | 5.00 | 1 3/4 | 2 x 3/4 | 4.37 | 3 1/2 x 1 | 10.00 |
| 5 | 59.06 | 5 1/2 | 102.20 | 5 x 3/4 | 6.25 | 2 | 2 1/4 x 3/4 | 5.00 | 3 3/4 x 1 | 11.66 |
| 5 1/8 | 65.45 | 6 | 112.20 | 6 x 3/4 | 7.50 | 2 1/4 | 2 1/2 x 3/4 | 5.62 | 4 x 1 | 13.33 |
| 5 1/4 | 73.02 | ..... | ..... | 1 x 1 1/2 | 1.66 | 2 1/2 | 2 3/4 x 3/4 | 6.25 | 4 1/2 x 1 | 15.00 |
| 5 1/2 | 80.03 | ..... | ..... | 1 1/8 x 1 1/2 | 1.87 | 2 3/4 | 3 x 3/4 | 6.87 | 5 x 1 | 16.66 |
| 5 3/4 | 87.08 | ..... | ..... | 1 1/4 x 1 1/2 | 2.08 | 3 | 3 1/2 x 3/4 | 8.50 | 5 1/2 x 1 | 18.33 |
| 6 | 95.06 | ..... | ..... | 1 3/8 x 1 1/2 | 2.29 | 3 1/2 | 4 x 3/4 | 8.75 | 6 x 1 | 20.00 |
| 6 1/8 | 112.02 | ..... | ..... | 1 1/2 x 1 1/2 | 2.50 | 4 | 4 x 3/4 | 10.00 | 6 1/2 x 1 | 21.66 |

WEIGHT OF FLAT STEEL PER FOOT.

| $\frac{1}{4}$ | 1 | $\frac{1}{8}$ | $\frac{1}{4}$ | $\frac{3}{8}$ | $\frac{1}{2}$ | $\frac{3}{4}$ | 2 | $2\frac{1}{4}$ | $2\frac{1}{2}$ | $2\frac{3}{4}$ | 3 | $3\frac{1}{4}$ | $3\frac{1}{2}$ |
|---------------|------|---------------|---------------|---------------|---------------|---------------|------|----------------|----------------|----------------|------|----------------|----------------|
| | .852 | .958 | 1.06 | 1.17 | 1.27 | 1.49 | 1.70 | 1.91 | 2.13 | 2.34 | 2.55 | 2.77 | 2.97 |
| $\frac{3}{8}$ | 1.27 | 1.43 | 1.59 | 1.75 | 1.91 | 2.23 | 2.55 | 2.87 | 3.20 | 3.51 | 3.83 | 4.15 | 4.47 |
| $\frac{1}{2}$ | 1.70 | 1.91 | 2.13 | 2.34 | 2.55 | 2.98 | 3.40 | 3.83 | 4.26 | 4.68 | 5.11 | 5.53 | 5.98 |
| $\frac{3}{4}$ | 2.13 | 2.39 | 2.66 | 2.92 | 3.19 | 3.72 | 4.26 | 4.79 | 5.32 | 5.85 | 6.39 | 6.92 | 7.45 |

MOULDERS AND PATTERN MAKERS' TABLE.

| Cast Iron being 1, | | | | Bar Iron being 1, | | | | White Pine being 1, | | | |
|---------------------|------|----------------------|------|----------------------|------|----------------------|------|----------------------|-------|-------|-------|
| Bar Iron equal..... | 1.07 | Cast Iron equal..... | .95 | Cast Iron equal..... | .95 | Cast Iron equal..... | .95 | Cast Iron equal..... | ..... | ..... | ..... |
| Steel "..... | 1.08 | Steel "..... | 1.03 | Brass "..... | 1.03 | Brass "..... | 1.03 | Brass "..... | ..... | ..... | ..... |
| Brass "..... | 1.16 | Copper "..... | 1.16 | Copper "..... | 1.16 | Copper "..... | 1.16 | Copper "..... | ..... | ..... | ..... |
| Copper "..... | 1.21 | Brass "..... | 1.09 | Lead "..... | 1.09 | Lead "..... | 1.09 | Lead "..... | ..... | ..... | ..... |
| Lead "..... | 1.31 | Lead "..... | 1.48 | Zinc "..... | 1.48 | Zinc "..... | 1.48 | Zinc "..... | ..... | ..... | ..... |

RELATIVE STRENGTH OF BODIES TO RESIST TORSION. LEAD BEING 1.

| | | | | | |
|--------------------|-----|--------------------|-----|-----------------------|------|
| Tin | 1.4 | Gun Metal | 5.0 | English Iron | 10.1 |
| Copper | 4.3 | Cast Iron | 9.0 | Blistered Steel | 16.6 |
| Yellow Brass | 4.6 | Swedish Iron | 9.5 | Shear Steel | 17.0 |

CAPACITIES, SIZE AND WEIGHT OF COPPERS.

| Depth in Inches. | Gallons. | Weight in pounds. | Depth in inches. | Gallons. | Weight in pounds. | Depth in inches. | Gallons. | Weight in pounds. |
|------------------|----------|-------------------|------------------|----------|-------------------|------------------|----------|-------------------|
| 9 $\frac{3}{4}$ | 1 | 1 $\frac{1}{2}$ | 24 | 15 | 22 $\frac{1}{2}$ | 29 $\frac{1}{2}$ | 29 | 43 $\frac{1}{2}$ |
| 12 $\frac{1}{4}$ | 2 | 3 | 24 $\frac{1}{2}$ | 16 | 24 | 30 | 30 | 45 |
| 14 | 3 | 4 $\frac{1}{2}$ | 25 | 17 | 25 $\frac{1}{2}$ | 32 | 36 | 54 |
| 15 $\frac{1}{2}$ | 4 | 6 | 25 $\frac{1}{2}$ | 18 | 27 | 34 | 43 | 64 $\frac{1}{2}$ |
| 16 $\frac{1}{2}$ | 5 | 7 $\frac{1}{2}$ | 26 | 19 | 28 $\frac{1}{2}$ | 35 | 48 | 72 |
| 17 $\frac{1}{2}$ | 6 | 9 | 26 $\frac{1}{2}$ | 20 | 30 | 36 | 53 | 79 $\frac{1}{2}$ |
| 18 $\frac{1}{2}$ | 7 | 10 $\frac{1}{2}$ | 26 $\frac{3}{4}$ | 21 | 31 $\frac{1}{2}$ | 37 | 58 | 87 |
| 19 $\frac{1}{2}$ | 8 | 12 | 27 | 22 | 33 | 38 | 63 | 74 $\frac{1}{2}$ |
| 20 $\frac{1}{4}$ | 9 | 13 $\frac{1}{2}$ | 27 $\frac{1}{4}$ | 23 | 34 $\frac{1}{2}$ | 39 | 67 | 100 $\frac{1}{4}$ |
| 21 | 10 | 15 | 27 $\frac{1}{2}$ | 24 | 36 | 40 | 71 | 106 $\frac{1}{2}$ |
| 21 $\frac{1}{2}$ | 11 | 16 $\frac{1}{2}$ | 27 $\frac{3}{4}$ | 25 | 37 $\frac{1}{2}$ | 45 | 104 | 156 |
| 22 | 12 | 18 | 28 | 26 | 39 | 50 | 146 | 219 |
| 22 $\frac{1}{2}$ | 13 | 19 $\frac{1}{2}$ | 28 $\frac{1}{2}$ | 27 | 40 $\frac{1}{2}$ | | | |
| 23 $\frac{1}{4}$ | 14 | 21 | 29 | 28 | 42 | | | |

WEIGHT OF SQUARE AND ROUND CAST IRON.

257

| Square per Foot. | | | | Round per Foot. | | | |
|------------------|---------|----------------|---------|-----------------|---------|----------------|---------|
| Size. | Weight. | Size. | Weight. | Size. | Weight. | Size. | Weight. |
| Inches square. | Pounds. | Inches square. | Pounds. | Inches Diam. | Pounds. | Inches Diam. | Pounds. |
| $\frac{1}{2}$ | .78 | 4 | 50. | $\frac{1}{2}$ | .61 | $4\frac{1}{8}$ | 41.66 |
| $\frac{3}{8}$ | 1.22 | $4\frac{1}{8}$ | 53.14 | $\frac{5}{8}$ | .95 | $4\frac{1}{4}$ | 44.27 |
| $\frac{3}{4}$ | 1.75 | $4\frac{1}{4}$ | 56.44 | $\frac{3}{4}$ | 1.38 | $4\frac{3}{8}$ | 46.97 |
| $\frac{7}{8}$ | 2.39 | $4\frac{3}{8}$ | 59.81 | $\frac{7}{8}$ | 1.87 | $4\frac{1}{2}$ | 49.70 |
| 1 | 3.12 | $4\frac{1}{2}$ | 63.28 | 1 | 2.45 | $4\frac{5}{8}$ | 52.50 |
| $1\frac{1}{8}$ | 3.95 | $4\frac{5}{8}$ | 66.84 | $1\frac{1}{8}$ | 3.10 | $4\frac{3}{4}$ | 55.37 |
| $1\frac{1}{4}$ | 4.88 | $4\frac{3}{4}$ | 70.50 | $1\frac{1}{4}$ | 3.83 | $4\frac{7}{8}$ | 58.32 |
| $1\frac{3}{8}$ | 5.90 | $4\frac{7}{8}$ | 74.26 | $1\frac{3}{8}$ | 4.64 | 5 | 61.35 |
| $1\frac{1}{2}$ | 7.03 | 5 | 78.12 | $1\frac{1}{2}$ | 5.52 | $5\frac{1}{8}$ | 64.46 |
| $1\frac{5}{8}$ | 8.25 | $5\frac{1}{8}$ | 82.08 | $1\frac{5}{8}$ | 6.48 | $5\frac{1}{4}$ | 67.64 |
| $1\frac{3}{4}$ | 9.57 | $5\frac{1}{4}$ | 86.13 | $1\frac{3}{4}$ | 7.51 | $5\frac{3}{8}$ | 70.09 |
| $1\frac{7}{8}$ | 10.98 | $5\frac{3}{8}$ | 90.28 | $1\frac{7}{8}$ | 8.62 | $5\frac{1}{2}$ | 74.24 |
| 2 | 12.50 | $5\frac{1}{2}$ | 94.53 | 2 | 9.81 | $5\frac{5}{8}$ | 77.65 |
| $2\frac{1}{8}$ | 14.11 | $5\frac{5}{8}$ | 98.87 | $2\frac{1}{8}$ | 11.08 | $5\frac{3}{4}$ | 91.14 |
| $2\frac{1}{4}$ | 15.81 | $5\frac{3}{4}$ | 103.32 | $2\frac{1}{4}$ | 12.42 | $5\frac{1}{3}$ | 84.71 |
| $2\frac{3}{8}$ | 17.62 | $5\frac{7}{8}$ | 107.86 | $2\frac{3}{8}$ | 13.84 | 6 | 88.35 |
| $2\frac{1}{2}$ | 19.53 | 6 | 112.50 | $2\frac{1}{2}$ | 15.33 | $6\frac{1}{4}$ | 95.87 |

WEIGHT OF SQUARE AND ROUND CAST IRON, ETC.—(CONTINUED).

| Square per Foot. | | | | Round per Foot. | | | |
|------------------|---------|----------------|---------|-----------------|---------|----------------|---------|
| Size. | Weight. | Size. | Weight. | Size. | Weight. | Size. | Weight. |
| Inches square. | Pounds. | Inches square. | Pounds. | Inches Diam. | Pounds. | Inches Diam. | Pounds. |
| $2\frac{5}{8}$ | 21.53 | $6\frac{1}{4}$ | 122.08 | $2\frac{5}{8}$ | 16.91 | $6\frac{1}{2}$ | 103.69 |
| $2\frac{3}{4}$ | 23.63 | $6\frac{1}{2}$ | 132.03 | $2\frac{3}{4}$ | 18.56 | $6\frac{3}{4}$ | 111.82 |
| $2\frac{7}{8}$ | 25.83 | $6\frac{3}{4}$ | 142.38 | $2\frac{7}{8}$ | 20.28 | 7 | 120.26 |
| 3 | 28.12 | 7 | 153.12 | 3 | 22.18 | $7\frac{1}{4}$ | 129. |
| $3\frac{1}{8}$ | 30.51 | $7\frac{1}{4}$ | 164.25 | $3\frac{1}{8}$ | 23.96 | $7\frac{1}{2}$ | 138.05 |
| $3\frac{1}{4}$ | 33. | $7\frac{1}{2}$ | 175.78 | $3\frac{1}{4}$ | 25.92 | $7\frac{3}{4}$ | 147.41 |
| $3\frac{3}{8}$ | 35.59 | $7\frac{3}{4}$ | 187.68 | $3\frac{3}{8}$ | 27.95 | 8 | 157.08 |
| $3\frac{1}{2}$ | 38.28 | 8 | 200.12 | $3\frac{1}{2}$ | 30.16 | $8\frac{1}{4}$ | 167.05 |
| $3\frac{5}{8}$ | 41.06 | $8\frac{1}{4}$ | 212.56 | $3\frac{5}{8}$ | 32.25 | $8\frac{1}{2}$ | 177.19 |
| $3\frac{3}{4}$ | 43.94 | $8\frac{1}{2}$ | 225.78 | $3\frac{3}{4}$ | 34.51 | $8\frac{3}{4}$ | 187.91 |
| $3\frac{7}{8}$ | 46.92 | $8\frac{3}{4}$ | 239.25 | $3\frac{7}{8}$ | 36.85 | 9 | 198.79 |
| | | 9 | 253.12 | 4 | 39.27 | $9\frac{1}{4}$ | 210. |

SPORTING MATTERS.

BASE-BALL RECORD FOR FIFTEEN YEARS.

Summary for 1892—National League.

| | WON. | LOST. | PER CENT. |
|-------------------|------|-------|-----------|
| Boston..... | 102 | 48 | .680 |
| Cleveland..... | 93 | 56 | .624 |
| Brooklyn..... | 95 | 59 | .616 |
| Philadelphia..... | 87 | 66 | .574 |
| Cincinnati..... | 82 | 69 | .542 |
| Pittsburg..... | 80 | 73 | .529 |
| Chicago..... | 70 | 76 | .479 |
| New York..... | 71 | 80 | .469 |
| Louisville..... | 63 | 89 | .414 |
| Washington..... | 58 | 93 | .384 |
| St. Louis..... | 57 | 94 | .378 |
| Baltimore..... | 46 | 101 | .313 |

Winners of the National League Games for Fifteen Years.

| YEAR. | | WON. | LOST. |
|-------|-----------------|------|-------|
| 1878 | Boston..... | 41 | 19 |
| 1879 | Providence..... | 59 | 25 |
| 1880 | Chicago..... | 67 | 17 |
| 1881 | Chicago..... | 56 | 28 |
| 1882 | Chicago..... | 55 | 29 |
| 1883 | Boston..... | 63 | 35 |
| 1884 | Providence..... | 84 | 28 |
| 1885 | Chicago..... | 87 | 25 |
| 1886 | Chicago..... | 90 | 34 |
| 1887 | Detroit..... | 79 | 45 |
| 1888 | New York..... | 84 | 47 |
| 1889 | New York..... | 83 | 43 |
| 1890 | Brooklyn..... | 86 | 43 |
| 1891 | Boston..... | 87 | 51 |
| 1892 | Boston..... | 102 | 48 |

THE MONARCHS OF THE TURF IN 1892.

TROTTING.

Sunol..... 2:08¼
 Nancy Hanks..... 2:04

PACING.

Hal Pointer, Aug. 18.. 2:05¼
 Mascot, Sept. 29..... 2:04

The Running Turf.

| DISTANCE. | TIME. | NAME. | PLACE. | DATE. |
|--------------------------|--------------------|--|---------------------|----------------|
| $\frac{1}{4}$ mile. | 0:21 $\frac{1}{2}$ | Jim Miller (2 years)..... | Deer Lodge, Mont | Aug. 16, 1888 |
| $\frac{1}{4}$ " | 0:21 $\frac{1}{2}$ | Sleepy Dick (aged)..... | Kiowa, Kan..... | Nov. 21, 1888 |
| $\frac{3}{8}$ " | 0:34 $\frac{1}{2}$ | Cyclone (aged), 120 lbs..... | Helena, Mont..... | Aug. 28, 1889 |
| $\frac{1}{2}$ " | 0:46 | Geraldine (4 yrs.), 122 lbs. Tr. partly down hill. | Westchest'r, N. Y. | Aug. 30, 1889 |
| $\frac{1}{2}$ " | 0:47 $\frac{3}{4}$ | Olitipa (2 yrs.), 97 lbs. Best on level track..... | Saratoga, N. Y.... | July 25, 1874 |
| $\frac{5}{8}$ " | 0:59 | Britannic (5 yrs.), 122 lbs. Tr. partly down hill. | Westchest'r, N. Y. | Aug. 31, 1889 |
| $\frac{5}{8}$ " | 0:59 | Fordham (4 yrs.), 115 lbs..... | " " | Oct. 4, 1889 |
| $\frac{5}{8}$ " | 0:59 | Sallie McClelland (2 yrs.), 115 lbs..... | " " | May 31, 1890 |
| $\frac{5}{8}$ " | 1:00 | Kittie Pease (4 y). Twice in ht. r. Best on lev. tr. | Dallas, Tex..... | Nov. 2, 1887 |
| $\frac{5}{8}$ " | 1:01 | Princess Bowling (2 y), 118 lbs. Best at age & wt. | Louisville, Ky.... | Sept. 25, 1888 |
| 5 $\frac{1}{2}$ furlong. | 1:06 $\frac{3}{4}$ | Hanover (5 yrs.), 124 lbs..... | Sheepsh'd By, L. I. | June 19, 1889 |
| 6 " | 1:10 $\frac{1}{4}$ | Fides (4 yrs.), 116 lbs. Track partly down hill. | Westchest'r, N. Y. | May 31, 1890 |
| 6 " | 1:11 | El Rio Rey (2 y.), 126 lbs. Best at age & weight. | " " | Aug. 31, 1889 |
| 6 " | 1:13 | Force (5 years), 120 lbs..... | Louisville, Ky.... | Sept. 24, 1883 |
| 6 " | 1:13 | Tom Hood (4 y.), 115 lbs. Best on lev. & strt. tr. | " " | Sept. 19, 1888 |
| 6 " | 1:13 $\frac{1}{2}$ | Gregory (2 y.), 105 lbs. Best on circular track.... | Gravesend, L. I.... | Sept. 30, 1889 |
| 6 " | 1:23 $\frac{1}{2}$ | Bella B. (5 yrs.), 103 lbs. Straight track..... | Monm'th Pk, N. J. | July 8, 1890 |
| 7 " | 1:23 $\frac{3}{4}$ | Britannic (5 years), 110 lbs..... | Sheepsh'd By, L. I. | Sept. 5, 1889 |
| 7 " | 1:28 | Emp. of Norf'k (3 y.), 125 lbs. Best at age & wt. | " " | June 14, 1888 |
| 7 " | 1:35 $\frac{1}{2}$ | Salvator (4 yrs.), 110 lbs. Straight tr. ag. time... | Monm'th Pk, N. J. | Aug. 26, 1890 |
| 1 m. 70 yds. | 1:45 $\frac{1}{4}$ | Lizzie B. (5 years), 104 lbs..... | Chicago, Ill..... | July 2, 1890 |
| 1 $\frac{1}{8}$ miles. | 1:46 $\frac{1}{2}$ | Prince Royal (5 years), 116 lbs..... | Westchest'r, N. Y. | June 11, 1890 |
| 1 $\frac{1}{8}$ " | 1:47 $\frac{1}{2}$ | Jim Douglas (aged), 122 lbs. Best at weight..... | Chicago, Ill..... | June 29, 1886 |
| 1 $\frac{1}{8}$ " | 1:52 $\frac{3}{4}$ | Teuton (4 years), 113 lbs..... | " " | June 28, 1890 |
| 1 $\frac{1}{8}$ " | 1:53 | Terra Cotta (4 years), 124 lbs..... | Sheepsh'd By, L. I. | June 23, 1889 |
| 1 $\frac{3}{8}$ " | 2:00 $\frac{1}{2}$ | Tristan (5 years), 102 lbs..... | " " | Sept. 4, 1890 |
| 1 $\frac{3}{8}$ " | 2:03 | Exile (4 y.), 126 lbs. Best at weight. Grass track | " " | Aug. 28, 1886 |
| 1 $\frac{1}{4}$ " | 2:03 $\frac{3}{4}$ | Banquet (3 yrs.), 108 lbs. Straight track..... | Monm'th Pk, N. J. | July 17, 1890 |
| 1 $\frac{1}{4}$ " | 2:05 | Salvator (4 y.), 122 lbs. Best on circular track.... | Sheepsh'd By, L. I. | June 25, 1890 |
| 1 $\frac{1}{4}$ " | 2:07 $\frac{1}{2}$ | Sinfax (2 yrs.), 90 lbs. Fastest at age..... | San Francisco, Cal | Nov. 20, 1890 |

| | | | | |
|--------------|-------|---|--------------------|----------------|
| 1 m. 500 yds | 2:10½ | Bend Or (4 yrs.), 115 lbs. | Saratoga, N. Y.... | July 25, 1882 |
| 1¾ miles. | 2:20¼ | Ormie (4 yrs.), 105 lbs. | Chicago, Ill..... | July 7, 1890 |
| 1½ " | 2:33 | Firenzi (6 yrs.), 117 lbs. | Sheepshd By, L.I. | June 26, 1890 |
| 1⅝ " | 2:48 | Hindocraft (3 yrs.), 75 lbs. | Westchest'r, N. Y. | Aug. 27, 1889 |
| 1¾ " | 3:01 | Glidelia (5 yrs.), 116 lbs. | Saratoga, N. Y.... | Aug. 5, 1882 |
| 1⅞ " | 3:20 | Enigma (4 yrs.), 90 lbs. | Sheepshd By, L.I. | Sept. 15, 1885 |
| 2 " | 3:27½ | Ten Broeck (5 yrs.), 110 lbs., against time. | Louisville, Ky.... | May 20, 1877 |
| 2⅛ " | 3:44½ | Monitor (4 yrs.), 110 lbs. | Baltimore, Md.... | Oct. 20, 1880 |
| 2¼ " | 3:56¼ | Preakness (ag.), 114 lbs. & Sp'gbok (5y) 114 lbs. d'd.h | Saratoga, N. Y.... | June 29, 1875 |
| 2½ " | 4:27½ | Aristides (4 yrs.), 104 lbs. | Lexington, Ky.... | May 13, 1876 |
| 2⅝ " | 4:58½ | Ten Broeck (4 yrs.), 104 lbs. | " | Sept. 16, 1876 |
| 2¾ " | 4:53¾ | Hubbard (4 yrs.), 103 lbs. | Saratoga, N. Y.... | Aug. 9, 1873 |
| 3 " | 5:24 | Drake Carter (4 yrs.), 115 lbs. | Sheepshd By, L.I. | Sept. 6, 1884 |
| 4 " | 7:15¾ | Ten Broeck (4 yrs.), 104 lbs., against time. | Louisville, Ky.... | Sept. 27, 1876 |
| 10 " | 26:18 | Mr. Brown (6 yrs.), 160 lbs. C. H. Pell, rider.... | Ranocas, N. J.... | Mar. 2, 1880 |

Heat Racing.

| | | | | |
|------------|-------------|---|--------------------|----------------|
| ¼ mile. | 0:21½-0:22¼ | Sleepy Dick (aged)..... | Kiowa, Kan..... | Nov. 24, 1888 |
| ½ " | 0:48-0:48 | Bogus (aged), 113 lbs. | Helena, Mont..... | Aug. 22, 1888 |
| ⅝ " | 1:00-1:00 | Kittie Pease (4 yrs.)..... | Dallas, Tex..... | Nov. 2, 1887 |
| ¾ " | 1:13¼-1:13¼ | Lizzie S. (5 yrs.), 118 lbs. | Louisville, Ky.... | Sept. 28, 1883 |
| 1 " | 1:42-1:41½ | Bounce (4 yrs.), 90 lbs. | Sheepshd By, L.I. | Sept. 8, 1881 |
| 1 ⅛ " | 1:42¼-1:41¾ | Gabriel (5 yrs.), 115 lbs. Best at weight.... | St. Louis, Mo.... | June 13, 1881 |
| 1 ¼ miles. | 1:50½-1:48 | Slipaloug (5 yrs.), 115 lbs. | Chicago, Ill..... | Sept. 2, 1885 |
| 1 ⅝ " | 1:56-1:56 | Gabriel (4 yrs.), 112 lbs. | Sheepshd By, L.I. | Sept. 23, 1880 |
| 1 ⅞ " | 1:56-1:56¾ | Firenzi (4 yrs.), 125 lbs. Best at weight.... | " | Sept. 15, 1888 |
| 1¾ " | 2:10-2:14 | Glenmore (5 yrs.), 114 lbs. | " | Sept. 25, 1880 |
| 1½ " | 2:42¼-2:43 | Bigaroon (4 yrs.)..... | Lockport, N. Y.... | July 4, 1872 |
| 2 " | 3:33-3:31¼ | Miss Woodford (4 yrs.), 107½ lbs. r..... | Sheepshd By, L.I. | Sept. 20, 1884 |
| 3 " | 5:27½-5:29½ | Norfolk (4 yrs.), 100 lbs. | Sacramento, Cal. | Sept. 23, 1865 |
| 3 ⅓ " | 5:28 | Brown Dick (3 yrs.), 86 lbs. Best second heat | New Orleans, La. | Apr. 10, 1855 |
| 3 ⅔ " | 5:28¾ | Mollie Jackson (4 y.), 101 lbs. Best third heat | Louisville, Ky.... | May 25, 1861 |
| 4 " | 7:23½-7:41 | Frida (4 yrs.), 108 lbs. | Sheepshd By, L.I. | Sept. 18, 1880 |
| 4 ¼ " | 7:30¼-7:31 | Glenmore (4 yrs.), 108 lbs. Best 2d & 3d heats | Baltimore, Md..... | Oct. 25, 1879 |

The Running Turf—Over Hurdles.

| Distance. | Time. | Name. | Place. | Date. |
|-----------------------------------|--|---------------------------------------|----------------------|-----------------|
| 1 mile | 1:49 | Bob Thomas 5y 140 lbs 4 hurdles..... | Chicago, Ill..... | Aug. 13, 1890. |
| 1 " | 1:50 ³ / ₄ -1:50 ¹ / ₄ | Joe Rhodes 5y 14 lbs 4 hurdles..... | St. Louis, Mo..... | June 4, 1878. |
| 1 ¹ / ₈ mls | 2:02 ³ / ₄ | Winalow 4y 138 lbs 5 hurdles..... | Chicago, Ill..... | Aug. 29, 1888. |
| 1 ¹ / ₄ " | 2:16 | Jim McGowan 4y 127 lbs 5 hurdles. | Br. Beach, C. I..... | Nov. 9, 1882. |
| 1 ³ / ₈ " | 2:35 | Gay (aged) 155 lbs 5 hurdles..... | Latonina, Ky..... | Oct. 8, 1885. |
| 1 ¹ / ₂ " | 2:47 | Kitty Clark 3y 130 lbs 6 hurdles..... | Br. Beach, C. I..... | Aug. 23, 1881. |
| 1 ¹ / ₂ " | 2:47 | Speculation 6y 125 lbs 6 hurdles..... | " "..... | July 19, 1881. |
| 1 ⁵ / ₈ " | 3:16 | Turfman 5y 140 lbs 7 hurdles..... | Saratoga, N. Y..... | Aug. 7, 1882. |
| 1 ³ / ₄ " | 3:17 | Kitty Clark 4y 142 lbs 7 hurdles..... | Monmouth Pk, N. J.. | July 12, 1882. |
| 2 " | 3:47 ¹ / ₂ | Tom Leathers (agd) 117 lbs 8 hrdls. | New Orleans, La..... | April 16, 1875. |
| 2 " | 3:48 ¹ / ₄ | Ventilator (agd) 135 lbs 8 hurdles.. | Sheepsh'd Bay, L. I. | June 24, 1880. |
| 1 ¹ / ₄ " | 4:33 | Cariboo 5y 154 lbs 9 hurdles..... | Monmouth Pk, N. J. | Aug. 28, 1875. |

Long Distance Riding.

| | | | | |
|--------------------------------------|-------------------------------------|---------------------------------------|----------------------|-----------------------|
| 10 mls | 20:02 | Miss Belle Cook 5 hors ch 5 times... | Minneapolis, Minn.. | Sept. 10, 1882. |
| 20 " | 40:59 | Little Cricket ch horses at will..... | " "..... | Sept. 7, 1882. |
| 50 " | 1 50:03 ¹ / ₂ | Carl Pugh 10 h ch at will mtch race. | S. Bernardino, Cal.. | July 7, 1883. |
| 60 " | 2:30:00 | Geo Osbaldiston 11 horses..... | Newmarket, Eng..... | Nov. 5, 1831. |
| 100 " | 4:19:40 | " " 16 " "..... | " "..... | Nov. 5, 1831. |
| 101m4971 | 4:42:35 | Miss Nellie Burke ch hors 54 times | Galveston, Tex..... | Feb. 25, 1884. |
| 155 mls | 6:45:07 | John Murphy ag time 20 horses..... | New York, N. Y..... | July 3, 1876. |
| 200 " | 8 hours. | Nell H Mowry 30 horses..... | Bay V w Pk, S. F co. | Aug. 2, 1868. |
| 201 " | 52 " | Hesing Jr mtch with G Guyon ped | Chicago, Ill..... | Jan. 9, 10, 11, 1880. |
| 300 " | 14:00:00 | Nell H Mowry 30 horses..... | San Francisco, Cal.. | Aug. 2, 1868. |
| 559m734y | | Pinafore 6 day race ag men & hors.. | " "..... | Oct. 15-20, 1879. |
| 1071 ¹ / ₂ mls | 72 hours. | C M Anderson 12 h daily ch at will. | " "..... | April 5-20, 1884. |
| 1304 " | 90 " | " " 15 " "..... | " "..... | May 15, 1880. |

PEDESTRIANISM-Running.

Amateur performances are designated by an asterisk (*).

| DISTANCE. | NAME. | PLACE. | DATE. | TIME. |
|---------------|------------------------------------|--------------------|-----------------|------------|
| 50 yards..... | H. M. Johnson..... | New York City. | Nov. 22, 1884. | 5¼ s. |
| 50 "..... | *L. E. Myers..... | " " | Dec. 12, 1884. | 5½ s. |
| 75 "..... | James Quirk (against time)..... | Parkhill, Can. | Oct. 30, 1888. | 7¼ s. |
| 75 "..... | *F. G. Saportas..... | New York City. | Jan. 5, 1878. | 7¾ s. |
| 80 "..... | *Wendell Baker (against time)..... | Boston, Mass. | July 1, 1886. | 8 s. |
| 100 "..... | H. M. Johnson..... | Cleveland, O. | July 31, 1886. | 9 4-5 s. |
| 100 "..... | Harry Bethune..... | Oakland, Cal. | Feb. 22, 1888. | 9 4-5 s. |
| 500 "..... | *L. E. Myers..... | Staten Island. | May 29, 1880. | 58 s. |
| 1,000 "..... | *L. E. Myers..... | New York City. | Oct. 8, 1881. | 2:13. |
| 1 mile..... | W. G. George..... | London, Eng. | Aug. 23, 1886. | 4:12¼. |
| 2 miles..... | Wm. Lang..... | Manchester, Eng. | Aug. 1, 1863. | 9:11½. |
| 3 "..... | P. Cannon..... | Govan, Scotland. | May 14, 1888. | 14:19¼. |
| 4 "..... | P. Cannon..... | Glasgow, Scotland. | Nov. 8, 1888. | 19:25 2-5. |
| 5 "..... | J. White..... | London, Eng. | May 11, 1863. | 24:40. |
| 6 "..... | J. White..... | " " | " " | 29:50. |
| 7 "..... | J. White..... | " " | " " | 34:45. |
| 8 "..... | J. Howitt..... | " " | June 1, 1852. | 40:20. |
| 9 "..... | J. Howitt..... | " " | " " | 45:21. |
| 10 "..... | W. Cummings..... | " " | Sept. 18, 1885. | 51:06. |
| 20 "..... | Patrick Byrnes..... | Halifax, N. S. | Oct. 4, 1879. | 1:54:00. |
| 30 "..... | G. Mason..... | London, Eng. | March 14, 1881. | 3:15:09. |
| 40 "..... | James Bailey..... | " " | " " | 4:37:27. |
| 50 "..... | George Cartwright..... | " " | Feb. 21, 1887. | 5:55:04½. |

72-HOUR RACES.—12 Hours DAILY.—Greatest distance traveled go-as-please in 12 hours, G. Littlewood, at London, Eng., Nov. 24, 1884, 89 miles, 880 yards. 24 Hours.—G. Littlewood, London, Eng., Nov. 25, 1884, 162 miles, 704 yards. 36 Hours.—G. Littlewood, London, Eng., Nov. 24-26, 1884, 229 miles, 1,408 yards. 48 Hours.—G. Littlewood, London, Eng., Nov. 24-27, 1884, 296 miles, 1,056 yards. 60 Hours.—C. Rowell, London, Eng., April 27 and May 1, 1885, 362 miles, 528 yards, 72 Hours.—C. Rowell, London, Eng., April 27 and May 2, 1885, 430 miles.

| | | | | | |
|-----|---|-----------------------|--|------------------------|----------------|
| 5 | " | 13:00 | Lady Mac, " | San Francisco, Cal.... | April 2, 1874 |
| 5 | " | 13:43 $\frac{3}{4}$ | Little Mac, wagon..... | San Francisco, Cal.... | Oct. 20, 1863 |
| 6 | " | 16:53 $\frac{3}{4}$ | Satellite, harness..... | Keokuk, Ia..... | Aug. 15, 1889 |
| 10 | " | 27:23 $\frac{1}{4}$ | Controller, " | San Francisco, Cal.... | Nov. 23, 1878 |
| 10 | " | 27:56 $\frac{1}{2}$ | Steel Gray, saddle..... | Leeming Lane, Eng.... | April 14, 1875 |
| 20 | " | 58:25 | Gapt. McGowan, harness, $\frac{1}{2}$ -mile trk. | Boston, Mass..... | Oct. 31, 1865 |
| 50 | " | 3:52:00 | Ginger, 15:3 hds., wgn. & dr. wg. 276 lbs. | Bath Road, Eng..... | July 10, 1887 |
| 50 | " | 3:55:40 $\frac{1}{2}$ | Artel, harness, driver weighing 60 lbs. | Albany, N. Y..... | 1846 |
| 100 | " | 9:55:53 | Conqueror, harness..... | Union Course, L. I.... | Nov. 12, 1853 |

With Running Mate.

| | | | | | |
|---|------|---|--|-----------------------|---------------|
| 1 | mile | 2:06 | H. B. Winship, against time..... | Providence, R. I..... | Aug. 1, 1884 |
| 1 | " | 2:08 $\frac{1}{2}$ | Frank, against another horse..... | Brooklyn, N. Y..... | Nov. 15, 1883 |
| 1 | " | 2:09 $\frac{1}{4}$ | H. B. Winship in a race. Fast. 4th ht. | Chicago, Ill..... | July 5, 1884 |
| 1 | " | 2:10 $\frac{1}{4}$ | " Fastest 2d heat..... | Brooklyn, N. Y..... | Nov. 15, 1883 |
| 1 | " | 2:12 $\frac{3}{4}$ - 2:10 $\frac{3}{4}$ | } " " 3d ht. & 3 conc. hts. | Chicago, Ill..... | July 5, 1884 |
| 1 | " | 2:09 $\frac{1}{4}$ | | | |

Double Teams.

| | | | | | |
|---|------|--------------------|---|-----------------------|----------------|
| 1 | mile | 2:13 | Belle Hamlin & Justina, ag. t. skl. w. ki. tr | Independence, Ia..... | Oct. 27, 1890 |
| 1 | " | 2:15 | " ag. t., skl. wag., round tr. | Terre Haute, Ind..... | Oct. 10, 1890 |
| 1 | " | 2:24 $\frac{1}{4}$ | Harry Mills & Eddie Medium, $\frac{1}{2}$ -m. tr. | Waverly, N. J..... | Sept. 22, 1887 |

Pacing Records.

| | | | | |
|--------------------|---|--|------------------------|----------------|
| $\frac{1}{4}$ mile | 0:29 $\frac{1}{4}$ | Johnston, against time..... | Springfield, Mass..... | Sept. 14, 1888 |
| $\frac{1}{2}$ " | 1:00 $\frac{1}{2}$ | " | New York, N. Y..... | Sept. 21, 1888 |
| 1 | 2:07 $\frac{3}{4}$ | Westmount, ag. time, with run. mate | Chicago, Ill..... | July 10, 1884 |
| 1 | 2:06 $\frac{1}{4}$ | Johnston, harness, against time..... | " | Oct. 3, 1884 |
| 1 | 2:08 $\frac{1}{2}$ | Roy Wilkes, ag. t. Best stl. rec., k. sh. tr. | Independence, Ia..... | Aug. 30, 1890 |
| 1 | 2:09 $\frac{3}{4}$ - 2:12 $\frac{3}{4}$ | } Hal Pointer. Best time in race and best 3 consecutive heats..... | Terre Haute, Ind..... | Oct. 9, 1890 |
| 1 | 2:13 | | Glenville, O..... | July 30, 1890 |
| 1 | 2:11 $\frac{1}{2}$ | Adonis. Race between horses..... | " | Aug. 3, 1888 |
| 1 | 2:13 | Johnston, saddle..... | Union Course, L. I.... | May 17, 1853 |
| 2 | 4:56 $\frac{1}{2}$ | Hero, harness..... | Hoboken, N. J..... | Aug. 15, 1843 |
| 3 | 7:44 | Oneida Chief, saddle..... | | |

BYCYCLING.

Amateur performances are designated by an asterisk (*).

| DISTANCE. | NAME. | PLACE. | DATE. | TIME. |
|--------------------------|--------------------------------|------------------------|----------------------|-----------------------|
| 440 yards..... | G. M. Hendee (agst. time)..... | Springfield, Mass..... | July 5, 1886..... | 38 $\frac{3}{4}$: 5 |
| 1 mile..... | *W. Windle (agst. time)..... | Peoria, Ill..... | Sept. 15, 1890..... | 2:25 $\frac{1}{2}$ |
| 2 "..... | W. A. Rowe (agst. time)..... | Springfield, Mass..... | Oct. 14, 1886..... | 5:11 |
| 3 "..... | " "..... | " "..... | " "..... | 7:48 $\frac{1}{4}$ |
| 4 "..... | " " (agst. time)..... | " "..... | Oct. 25, 1886..... | 10:41 $\frac{1}{2}$ |
| 6 "..... | " "..... | " "..... | " "..... | 13:23 $\frac{1}{2}$ |
| 10 "..... | " "..... | " "..... | " "..... | 27:07 $\frac{1}{2}$ |
| 25 "..... | F. F. Ives (agst. time)..... | " "..... | Oct. 9, 1886..... | 1:14:23 $\frac{1}{2}$ |
| 25 "..... | J. Dubois..... | Coventry, Eng..... | Aug. 25, 1887..... | 1:10:34 $\frac{1}{2}$ |
| 25 "..... | *P. Furnival..... | Surbiton, Eng..... | Sept. 22, 1887..... | 1:13:49 $\frac{1}{2}$ |
| 50 "..... | S. G. Whitaker..... | St. Louis, Mo..... | Nov. 26, 1885..... | 2:55:38 $\frac{1}{2}$ |
| 50 "..... | *J. H. Adams..... | Eng..... | July 25, 1889..... | 2:33:37 $\frac{1}{2}$ |
| 50 "..... | W. F. Knapp (ag. time)..... | Leicester, Eng..... | Aug. 14, 1888..... | 2:29:41 |
| 100 "..... | *F. R. Fry..... | London, Eng..... | July 27, 1883..... | 5:50:05 $\frac{1}{2}$ |
| 105 "..... | F. E. Dingley..... | Lynn, Mass..... | Sept. 22, 1887..... | 5:38:44 $\frac{1}{2}$ |
| 120 "..... | " "..... | Minneapolis, Mass..... | Dec. 9-10, 1887..... | 6:21:25 |
| 130 "..... | " "..... | " "..... | " "..... | 7:23:48 |
| 140 "..... | " "..... | " "..... | " "..... | 8:04:55 |
| 150 "..... | " "..... | " "..... | " "..... | 8:44:37 |
| 160 "..... | " "..... | " "..... | " "..... | 9:24:52 |
| 200 "..... | " "..... | " "..... | " "..... | 10:06:45 |
| 250 "..... | " "..... | " "..... | " "..... | 12:56:50 |
| 300 "..... | " "..... | " "..... | " "..... | 16:39:42 |
| 320 "..... | " "..... | " "..... | " "..... | 20:16:12 |
| 340 "..... | " "..... | " "..... | " "..... | 21:45:25 |
| 350 $\frac{1}{2}$ "..... | " "..... | " "..... | " "..... | 23:59:58 |

SAFETY BICYCLE.

Amateur performance.*

| DISTANCE. | NAME. | PLACE. | DATE. | TIME. |
|--------------------------|-----------------------------------|------------------------|---------------------|-----------------------|
| $\frac{1}{4}$ mile | S. G. Whittaker (agst. time)..... | Long Eaton, Eng..... | Aug. 3, 1888..... | 30 |
| $\frac{1}{4}$ " | *A. G. Sheen..... | Cardiff, Wales..... | Oct. 19, 1889..... | 35 $\frac{1}{2}$ |
| $\frac{1}{4}$ " | *W. F. Gassler (agst. time)..... | Hartford, Conn. | July 11, 1890..... | 34 |
| $\frac{1}{2}$ " | A. P. Engleheart..... | Coventry, Eng..... | June 13, 1888..... | 1:18 $\frac{1}{2}$ |
| $\frac{1}{2}$ " | *E. Leitch (agst. time)..... | Paddington, Eng..... | June 17, 1890..... | 1:13 $\frac{1}{2}$ |
| $\frac{1}{2}$ " | *P. J. Berlo (agst. time)..... | Peoria, Ill..... | Sept. 15, 1890..... | 1:13 $\frac{1}{2}$ |
| $\frac{1}{2}$ " | *C. E. Kluge (agst. time)..... | " | " 16, 1890..... | 1:13 $\frac{1}{2}$ |
| $\frac{1}{2}$ " | R. Howell..... | Springfield, Mass..... | " 25, 1885..... | 1:22 |
| $\frac{3}{4}$ " | F. W. Allard..... | Coventry, Eng..... | May 12, 1888..... | 1:53 $\frac{1}{2}$ |
| $\frac{3}{4}$ " | *R. J. McCreedy..... | Paddington, Eng..... | July 9, 1890..... | 1:52 $\frac{1}{2}$ |
| $\frac{3}{4}$ " | P. J. Berlo (agst. time)..... | Peoria, Ill..... | Sept. 15, 1890..... | 1:51 |
| $\frac{3}{4}$ " | *C. E. Kluge (agst. time)..... | " | " 16, 1890..... | 1:51 |
| 1 " | S. G. Whittaker..... | Long Eaton, Eng..... | " 18, 1888..... | 2:31 $\frac{1}{2}$ |
| 1 " | *P. J. Berlo (agst. time)..... | Peoria, Ill | " 15, 1890..... | 2:30 |
| 2 miles..... | S. G. Whittaker..... | Long Eaton, Eng..... | " 11, 1888..... | 5:18 $\frac{1}{2}$ |
| 2 " | *A. P. Engleheart..... | Springfield, Mass..... | " 10, 1885..... | 5:46 $\frac{1}{2}$ |
| 10 " | S. G. Whittaker (agst. time)..... | Long Eaton, Eng..... | " 11, 1888..... | 27:05 $\frac{1}{2}$ |
| 10 " | T. W. Eck..... | Minneapolis, Minn.. | Dec. 10, 1887..... | 37:30 |
| 25 " | S. G. Whittaker (agst. time)..... | Long Eaton, Eng..... | Sept. 18, 1888..... | 1:11:05 $\frac{1}{2}$ |
| 25 " | *E. L. Bates..... | Paddington, Eng..... | July 30, 1889..... | 1:14:37 $\frac{1}{2}$ |
| 26 " | S. G. Whittaker (agst. time)..... | Coventry, Eng..... | " | 1:15:28 $\frac{1}{2}$ |
| 30 " | E. Oxborrow (agst. time)..... | London, Eng..... | Sept. 12, 1888..... | 1:28:29 |
| 40 " | *J. E. L. Bates..... | Paddington, Eng..... | July 30, 1889..... | 2:05:56 $\frac{1}{2}$ |
| 50 " | *R. A. Lloyd (agst. time)..... | Paddington, Eng..... | " 31, 1890..... | 2:41:47 |
| 50 " | T. W. Eck | Minneapolis, Minn..... | Dec. 10, 1887..... | 3:18:50 |

ONE HOUR—21 miles 126 yards, S. G. Whittaker, roadster safety, Bordeaux, France, August 15, 1888; *21 miles 100 yards, H. E. Laurie, England, August 31, 1888.

TWO HOURS—*37 miles 910 yards, J. H. Adams, England, August 28, 1889.

TANDEM SAFETY BICYCLE

Amateur Performances*

| DISTANCE | NAME. | PLACE. | DATE. | TIME. |
|--------------|--|--------------------|----------------|---------|
| 440 y'ds. | *S. E. Williams and E. E. Glover (agst. time). | Paddington, Eng... | Sept. 20, 1890 | :40 |
| 880 " | " " | " " | " 20, " | 1:18 |
| 1,320 " | " " | " " | " 20, " | 1:58 |
| 1 mile. | *H. Smith and W. F. Murphy | Peoria, Ill..... | " 15, " | 2:27 |
| 1 " | *S. E. Williams and E. E. Glover | Paddington, Eng... | " 20, " | 2:40 |
| 1 1/4 miles. | *Bert. Myers and L. Massi (agst. time)..... | Peoria, Ill..... | " 16, " | 3:55 |
| 2 miles. | " " | " " | " 16, " | 5:15 |
| 3 " | *R. A. Lloyd and E. E. Glover..... | Paddington, Eng... | " 4, " | 8:30 |
| 4 " | " " | " " | " " " | 11:16 |
| 5 " | " " | " " | " " " | 11:02 |
| 10 " | " " | " " | " " " | 28:24 |
| 15 " | D. Albone and E. E. Glover (agst. time)..... | London, Eng..... | Oct. 15, 1888 | 46:23 |
| 20 " | " " | " " | " " | 1:02:16 |

TANDEM ROAD RIDING.

| | | | | |
|-----------|--|---------------------|---------------|---------|
| 30 miles. | D. Albone and R. Tingey (safety)..... | Gr't N'th R'd, Eng. | Oct. 9, 1888 | 1:59:00 |
| 50 " | *P. C. Wilson and E. Dangerfield (safety)..... | " " | Aug. 18, 1890 | 2:40:34 |
| 100 " | *S. Edge and G. L. Morris..... | " " | Oct. 25, 1887 | 6:57:32 |

BILLIARD PLAYING.—Best run at three-ball carrom rail game—2,572, Harvey McKenna, Boston, Mass., December 21, 1887. Average, 416 2/3. Best at four-ball carrom game—1,483, J. McDewitt, New York, January 8, 1868. Best at champion's game, three-ball carroms, 14x28 lines—398, George Slosson, match of 3,000 points (600 per night), Paris, France, January 30 to February 3, 1882. Best in America—351, J. R. Heiser, 600-point match, N. Y. City, February 14, 1884. Best at English spot-barred game—690, John Roberts, match, London, Eng., March 11, 1889. English spot-stroke game—3,304, W. J. Peal, 15,000 up, London, November 3-8, 1888.

TYPEWRITING.—Miss Mae E. Orr, writing five minutes each on legal testimony and ordinary correspondence, wrote 987 words, averaging nearly 99 words per minute—Toronto, Can., August 13, 1888. 8,709 words in 1h. 30m.; 4,294, or 95.55 per minute from dictation, and 4,415, or 98.11 per minute, from copy, 45m. each; Frank E. McGurran, Cincinnati, July 25, 1888.

Rifle Shooting.

Where not otherwise stated, the count is Creedmore—bull's eye, 5 points.

| POINTS. | DISTANCE. | NAME. | PLACE. | DATE. |
|--------------|-----------------------------|--|--------------------|--------------------|
| 75 out of 75 | 1,000 yds..... | W. H. Jackson..... | Boston, Mass..... | Aug. 13, 1879 |
| 75 " | " | J. K. Milner..... | Creedmore, L. I.. | Sept. 14, 1876 |
| 75 " | " | C. H. Laird..... | Washington, D. C. | Oct. 18, 1879 |
| 75 " | 200 yds..... | Dr. W. F. Wilcox (off-hand). | Catskill, N. Y.... | May 3, 1882 |
| 82 " | " | G. H. Wentworth (bull's eye 12) | Dover, N. H..... | June 14, 1884 |
| 93 " | 105 800, 900 and 1,000 y. | T. J. Dolan (7 sh's each range) | Creedmore, L. I.. | Sept. 26, 1883 |
| 98 " | 100 200 and 500 yds.... | J. D. Cameron (ml't'y r. 6-lb. p'l) | Carson City, Nev. | Sept. 14, 1883 |
| 100 " | 100 200 yds..... | W. M. Farrow (off-hand).... | Boston, Mass..... | Oct. 15, 1882 |
| 100 " | " | H. J. Bixby..... | " | April 6, 1880 |
| 150 " | 150 800 and 900 yds.... | Cole Mandlin..... | W. Union Jct, Wis | Aug. 27, 1864 |
| 155 " | 155 200 yds..... | E. F. Richardson (off-hand). | Lawrence, Mass.. | July 11, 1885 |
| 191 " | 225 1,000, 1,100 & 1,200 y | Frank Hyde (15 sh. each dist.) | Brinton, N. J.... | Oct. 12, 1878 |
| 198 " | 225 900, 1,000 & 1,100 y. | W. H. Jackson (15 sh. each dist.) | " | Oct. 12, 1878 |
| 224 " | 225 800, 900 and 1,000 y. | W. Gerrish (15 sh. each dist.) | Boston, Mass..... | Sept. 15, 1880 |
| 224 " | " | C. W. Hinman..... | " | Aug. 24, 1881 |
| 224 " | " | C. M. Bell..... | Chicago, Ill..... | Oct. 1, 1881 |
| 242 " | 250 500 yds..... | F. R. Bull..... | Springfield, Mass | Aug. —, 1886 |
| 433 " | 450 800, 900 and 1,000 y. | W. H. Jackson (30 sh. c'h rg.) | Creedmore, L. I.. | Sept. 25-26, 1878 |
| 452 " | 500 20 shots at ring targ | A. Strecker..... | San Francisco, Cal | Dec. 15, 1889 |
| 471 " | 500 200 yds..... | H. Carr (off-hand, military { rfl. 100 sh. 6-lb p'l, op. sl'ts { | " | Oct. 18, 1884 |
| 623 " | 675 800, 900 and 1,000 y. | W. H. Jackson..... | Creedmore, L. I.. | Sept. 22-24, 1879 |
| 1,810 " | 2,000 200 yds.... | F. Kuhnle, Sergt. Hovey, I. { S. Kellogg & Nick Will- iams, 100 sh. each, off-hd.) } | S. Francisco, Cal. | July 20, 1884 |
| 2,211 " | 2,500 " | W. Hayes..... | Newark, N. J.... | Aug. 7, 1886 |
| 3,334 " | 3,600 800, 900 and 1,000 y. | Am. Team, 8 men, 30 sh. each rg. | Creedmore, L. I.. | Sept. 13, 14, 1887 |

WALKING.

| DISTANCE. | NAME. | PLACE. | DATE. | TIME. |
|-----------|--------------|---------------|--------------|---------|
| 1 mile. | W. Perkins. | London, Eng. | June 1, '74 | 6:23 |
| 2 " | J. W. Roby. | " " | Aug. 20, '83 | 13:14 |
| 3 " | " " | " " | " " " | 20:21½ |
| 4 " | " " | " " | " " " | 27:38 |
| 5 " | " " | " " | " " " | 35:10 |
| 6 " | " " | " " | " " " | 43:01 |
| 7 " | " " | " " | " " " | 51:04 |
| 8 " | John Meagher | New York City | Nov. 29, '82 | 58:37 |
| 9 " | J. W. Roby | London, Eng. | Dec. 3, '83 | 1:07:14 |
| 10 " | " " | " " | " " " | 1:14:45 |
| 20 " | W. Perkins | " " | July 1, '77 | 2:39:57 |
| 50 " | J. Hibbard | " " | May 14, '88 | 7:54:16 |

GREATEST DISTANCE WALKED IN AN HOUR.—8 m. 302 yds., by John Meagher, N. Y. City, Nov. 29, '82. Two Hours.—15 m. 824 yds., by W. Perkins, London, Eng., July 16, '77. THREE Hours.—22 m. 456½ yds. by H. Thatcher, London, Eng. Feb. 20, '82. Four Hours.—27 m. 440 yds., by W. Franks, London, Eng., Aug. 28, '82. TWENTY-FOUR Hours.—127 m. 1,210 yds., by W. Howes, London, Eng., Feb. 23, '78.

GREATEST DISTANCE WALKED IN 72 HOURS, (12 HOURS EACH DAY).—363 miles, by C. Faber, Pittsburg, Pa., June 28, July 3, '80; also, 363 miles, by J. Scott, London, Eng., May 14, '88.

GREATEST DISTANCE WALKED WITHOUT A REST.—12¼ miles, 385 yds., by C. A. Harriman, Truckee, Cal., April 6-7, 1883.

ROWING.

Performances by amateurs are designated by an*.

1½ miles—*7:41, eight oars, straightaway, Atalanta Boat club, Pullman, Ill., Aug. 9, 1889. [The Cornell University crew rowed the distance in 7:03, at Philadelphia, July 4, 1889, but with current very strong.] 8:01¼, four oars, straightaway, Fairmount Rowing association, Albany, N. Y., July 21, 1886. [The Watkins crew rowed the distance in 7:46¾, at Detroit, Mich., Aug. 15, 1887, but the current was very strong.] *7:59, double scull, straightaway, J. Buckley and W. O'Connell, Portland, B. C., Lachine, Can., Aug. 21, 1882. *8:36, single scull, straightaway, Joseph Laing, Lachine, Can., Aug. 19, 1882. *8:36¼, four oars, turn, still water, Modoc Boat club, Salt Lake, Utah, Aug. 30, 1888. *8:41, pair-oared shell, straightaway, J. H. Clegg and F. D. Standish, Excelsior, B. C., Lachine, Can., Aug. 19, 1882. ☉

2 miles—*9:43½, eight oars, straightaway, Columbia College crew, New London, Conn., June 26, 1884. *12:16, double-scutt, turn, F. E. Yates and C. E. Courtney, Saratoga, N. Y., Aug. 8, 1876. *12:20¼, pair-oar, straightaway, J. H. Riley and J. A. Kennedy, Greenwood lake, N. Y., Oct. 9, 1876. *13:21½, single scull, turn, J. H. Riley, Saratoga, Aug. 9, 1876.

2½ miles—*12:57, eight oars, straightaway, Yale University crew, New London, Conn., June 29, 1888.

AUSTRALIAN BALLOT SYSTEM.

INSTRUCTIONS FOR VOTERS

In Conformity with the Illinois State Laws.*


When entering the voting place, give your name, and if required, your residence, to the Judges of Election.


If your name be found on the Register, you will be permitted to enter the enclosed space inside the guard rail. Then, if your vote be not challenged, one of the Judges will hand you a Ballot, on the back of which he must write his initials. If your name be not on the Register, or has been erased, you cannot vote.

If your vote be challenged you will not receive a Ballot until you have established your right to vote, either under oath to the Judges of Election, or by affidavit.

When you have received a ballot retire at once, alone, into one of the voting booths, and prepare your ballot for the ballot box by marking it as the law prescribes.

At the top of each column you will find the name of each party ticket or list of candidates, as Democratic, Republican, Prohibition, etc. The names of all the candidates of each party and each group of petitioners are to be found in that column directly beneath the name of the party, and nowhere else.



At the left of the party name, or heading of the different tickets, will be a circle half-inch in diameter, thus: 

At the left of each name on the ballot will be a square quarter-inch on each side, thus:  To prepare your

ballot for voting, you must mark it with a cross, thus: **X**, either in the circle at the top of the ticket, or in the square before the name of each candidate for whom you wish to vote; you can make this cross either with a pen or pencil.

Do not mark your ballot in any way, except as directed below, and do not erase any names.

The law of most states using the Australian ballot system, permits four methods of marking the ballots for voting, as follows:

1. To vote for all candidates of a party, that is to vote a straight party ticket, mark a cross in the circle at the head of the ticket of your choice, thus:  A ballot so marked will be counted for all the candidates in the column under the circle so marked. 

* Similar laws, differing only in unimportant details, are in use in a majority of the States of the Union.

2. To split or scratch a ballot make a cross in the circle at the head of the ticket of your choice, and then make a cross in the square before the name or names of any candidates for whom you want to vote on any other ticket or tickets. A ballot so marked will be counted for all of the candidates on the ticket under the circle marked, except for the offices for which the names of candidates are marked on the other ticket or tickets on the ballot, and the latter will be counted for the candidates marked in the square on those tickets. But voters are cautioned against marking a ballot by this method when there is more than one candidate to be elected to the same office on the same ballot, as in case of Presidential Electors, Congressman-at-Large, etc. The law says: "If the voter marks more names than there are persons to be elected to an office, his ballot shall not be counted for such office." Therefore, if you wish to split your ticket on Presidential Electors, Congressmen-at-Large, etc., you should do so by placing a cross (X) opposite the names of all those you wish to vote for, but you must be careful not to make a cross (X) opposite the names of more than the number of men to be elected for each office. When there is but one candidate to be elected to the same office on the same ballot, the danger of confusion above pointed out does not arise. A safe way to "split" a ticket, however, is to mark the name of each candidate for whom you want to vote in the squares and leave the circle blank.

3. Another method of marking a ballot, that is, to vote for some of the candidates on one ticket and remaining candidates on another ticket, leave all the circles blank and mark a cross in the square to the left of each candidate of your choice. A ballot so marked will be counted only for the candidate marked. But be careful not to mark more names than there are persons to be elected to office, or your ballot will not be counted for such office.

4. If the voter desires to vote for a candidate not on the ticket of his choice, he may write in the name of the candidate of his choice in the blank space on the ticket, making a cross (X) before the name written in.

Where the word ballot is used in this instruction the entire sheet given to the voter by the Judge of Election is meant.

Where the word ticket is used, only a single party group of candidates is meant.

In voting on any proposition submitted to vote, and printed on the ballot, make a cross (X), mark in the column opposite the headings "Yes" or "No," and your

ballot will be counted "for," if you mark opposite "Yes," and "against," if you mark opposite "No."

Before leaving the voting booth fold your ballot so as to conceal the marks, and to expose the official endorsement on the back.

Leave the booth and hand your ballot to the judge in charge of the ballot box, who, without numbering it, must deposit it in the box.

You will not be allowed to occupy a voting booth with another voter.

You will not be allowed to occupy a booth more than five minutes, if others are waiting to vote.

You will not be allowed to remain in the enclosed space more than ten minutes, and you must quit it as soon as you have voted.

You will not be allowed to re-enter the enclosed space, after you have voted, during the election.

You will not be allowed to take a ballot from the polling place.

You will not be allowed to vote any ballot except the one you received from the judges.

If you spoil a ballot in preparing it, you must return it and ask for another in the place of it. Do not vote a torn or mutilated ballot.

If a voter will declare upon oath that he cannot read the English language, or that by reason of physical disability he is unable to mark his ballot, upon request he will be assisted by two of the election officers, appointed for that purpose, of opposite political parties. These officers will mark the ballot as directed by the voter.

Intoxication will not be regarded as a physical disability, and if a voter is intoxicated, he will receive no assistance in marking his ballot.

The polls will be opened at 6 o'clock in the morning and closed at 4 o'clock in the evening. Between these hours voters are entitled to absent themselves from their place of employment for the period of two hours for the purpose of voting. They will not be liable to any penalty for their absence, nor shall any deduction be made from their wages or salary on that account: but they must ask for leave of absence before the day of election, and their employer may specify the hours during which they may be absent.

These are the prescriptions of the law as practiced in Illinois. For details and slight changes in other states, consult the Election Commissioners in your district.

COST OF ROYALTY IN ENGLAND.

POUNDS REDUCED TO DOLLARS.

| | |
|---|-------------------|
| The Queen—Privy Purse..... | \$ 300,000 |
| Household Expenses and Sundries | 1,625,000 |
| | <hr/> \$1,925,000 |
| Prince of Wales | 200,000 |
| Princess of Wales..... | 50,000 |
| Children of the Prince of Wales (in trust)..... | 180,000 |
| Queen's Children—German Empress Frederick | 40,000 |
| Duke of Edinburgh | 125,000 |
| Princess Christian of Schleswig-Holstein.. | 30,000 |
| Princess Louise (Lorne)..... | 30,000 |
| Duke of Connaught | 125,000 |
| Princess Beatrice (Battenberg)..... | 30,000 |
| Duchess of Albany (daughter-in-law)..... | 30,000 |
| Queen's Cousins—Duke of Cambridge | 60,000 |
| Duchess of Mecklenburg-Strelitz..... | 15,000 |
| Duchess of Teck..... | 25,000 |
| Other Royal Pensions, together..... | 125,305 |
| | <hr/> |
| Total..... | \$2,990,305 |

RULES FOR SPELLING.

Words ending in *e* drop that letter before the termination *able*, as in *move*, *moveable*; unless ending in *ce* or *ge*, when it is retained, as in *change*, *changeable*, etc.

Words of one syllable, ending in a consonant, with a single vowel before it, double the consonants in derivatives; as, *ship*, *shipping*, etc. But if ending in a consonant with a double vowel before it, they do not double the consonant in derivatives; as *troop*, *trooper*, etc.

Words of more than one syllable, ending in a consonant preceded by a single vowel, and accented on the last syllable, double that consonant in derivatives; as *commit*, *committed*; but except *chagrin*, *chagrined*.

All words of one syllable ending in *l*, with a single vowel before it, have double *ll* at the close; as *mill*, *sell*.

All words of one syllable ending in *l*, with a double vowel before it, have only one *l* at the close; as *mail*, *sail*.

The words *foretell*, *distill*, *instill* and *fulfill*, retain the double *ll* of their primitives. Derivatives of *dull*, *skill*, *will* and *full* also retain the *ll* when the accent falls on these words; as *dullness*, *skillful*, *willful*, *fullness*.

Words of more than one syllable ending in *l* have only one *l* at the close; as delightful, faithful; unless the accent falls on the last syllable; as befall, etc.

Words ending in *l*, double the letter in the termination *ly*.

Participles ending in *ing*, from verbs ending in *e*, lose the final *e*; as have, having; make, making, etc.; but verbs ending in *ee* retain both; as see, seeing. The word dye, to color, however, must retain the *e* before *ing*.

All verbs ending in *ly*, and nouns ending in *ment*, retain the *e* final of the primitives; as brave, bravely; refine, refinement; except words ending in *dge*; as acknowledge, acknowledgment.

Nouns ending in *y*, preceded by a vowel, form their plural by adding *s*; as money, moneys; but if *y* is preceded by a consonant, it is changed to *ies* in the plural; as bounty, bounties.

Compound words whose primitives end in *y*, change the *y* into *i*; as beauty, beautiful.

THE USE OF CAPITALS.

1. Every entire sentence should begin with a capital.
2. Proper names, and adjectives derived from these, should begin with a capital.
3. All appellations of the Deity should begin with a capital.
4. Official and honorary titles begin with a capital.
5. Every line of poetry should begin with a capital.
6. Titles of books and the heads of their chapters and divisions are printed in capitals.
7. The pronoun I and the exclamation O are always capitals.
8. The days of the week and the months of the year begin with capitals.
9. Every quotation should begin with a capital letter.
10. Names of religious denominations begin with capitals.
11. In preparing accounts, each item should begin with a capital.
12. Any word of very special importance may begin with a capital.

Savings Bank Compound Interest Table.

Showing the amount of \$1, from 1 year to 15 years, with Compound Interest added semi-annually, at different rates.

| | Ten Per cent. | Nine Per cent. | Eight Per cent. | Seven Per cent. | Six Per cent. | Five Per cent. | Four Per cent. | Three Per cent. |
|-----------|------------------|-------------------|--------------------|--------------------|------------------|-------------------|-------------------|--------------------|
| 15 years. | \$4.32 | \$3.74 | \$3.24 | \$2.80 | \$2.42 | \$2.09 | \$1.80 | \$1.56 |
| 14 " | 3.62 | 3.42 | 2.99 | 2.62 | 2.28 | 1.99 | 1.73 | 1.51 |
| 13 " | 3.55 | 3.14 | 2.77 | 2.44 | 2.15 | 1.90 | 1.67 | 1.47 |
| 12 " | 3.22 | 2.87 | 2.56 | 2.28 | 2.03 | 1.80 | 1.60 | 1.42 |
| 11 " | 2.92 | 2.63 | 2.36 | 2.13 | 1.91 | 1.72 | 1.54 | 1.38 |
| 10 " | 2.65 | 2.41 | 2.19 | 1.98 | 1.80 | 1.63 | 1.48 | 1.34 |
| 9½ " | 2.52 | 2.30 | 2.10 | 1.92 | 1.75 | 1.59 | 1.45 | 1.32 |
| 9 " | 2.40 | 2.20 | 2.02 | 1.85 | 1.70 | 1.55 | 1.42 | 1.30 |
| 8½ " | 2.29 | 2.11 | 1.94 | 1.79 | 1.65 | 1.52 | 1.39 | 1.28 |
| 8 " | 2.18 | 2.02 | 1.87 | 1.73 | 1.60 | 1.48 | 1.37 | 1.26 |
| 7½ " | 2.07 | 1.93 | 1.80 | 1.67 | 1.55 | 1.44 | 1.34 | 1.24 |
| 7 " | 1.97 | 1.85 | 1.73 | 1.61 | 1.51 | 1.41 | 1.31 | 1.23 |
| 6½ " | 1.88 | 1.77 | 1.66 | 1.56 | 1.46 | 1.37 | 1.29 | 1.21 |
| 6 " | 1.79 | 1.69 | 1.60 | 1.51 | 1.42 | 1.34 | 1.26 | 1.19 |
| 5½ " | 1.71 | 1.62 | 1.53 | 1.45 | 1.38 | 1.31 | 1.24 | 1.17 |
| 5 " | 1.62 | 1.55 | 1.48 | 1.41 | 1.34 | 1.28 | 1.21 | 1.16 |
| 4½ " | 1.55 | 1.48 | 1.42 | 1.36 | 1.30 | 1.24 | 1.19 | 1.14 |
| 4 " | 1.47 | 1.42 | 1.36 | 1.31 | 1.26 | 1.21 | 1.17 | 1.12 |
| 3½ " | 1.40 | 1.36 | 1.31 | 1.27 | 1.22 | 1.18 | 1.14 | 1.10 |
| 3 " | 1.34 | 1.30 | 1.26 | 1.22 | 1.19 | 1.15 | 1.12 | 1.09 |
| 2½ " | 1.27 | 1.24 | 1.21 | 1.18 | 1.15 | 1.13 | 1.10 | 1.07 |
| 2 " | 1.21 | 1.19 | 1.16 | 1.14 | 1.12 | 1.10 | 1.08 | 1.06 |
| 1½ " | 1.15 | 1.14 | 1.12 | 1.10 | 1.09 | 1.07 | 1.06 | 1.04 |
| 1 " | 1.10 | 1.09 | 1.08 | 1.07 | 1.06 | 1.05 | 1.04 | 1.03 |
| ½ " | 1.05 | 1.04 | 1.04 | 1.03 | 1.03 | 1.02 | 1.02 | 1.01 |

ONE DOLLAR LOANED 100 YEARS at Compound Interest would amount to the following sum:

| | | | |
|-------------------|--------------------|-------------------|-------------|
| 24 per cent. | \$2,351,799,404.00 | 10 per cent. | \$13,809.00 |
| 18 " | 15,145,207.00 | 6 " | 340.00 |
| 15 " | 1,174,405.00 | 3 " | 19.25 |
| 12 " | 84,675.00 | 1 " | 2.75 |

Safe Business Rules.

Business men, in business hours, attend only to business matters. Social calls are best adapted to the social circle. Make your business known in few words, without loss of time. Let your dealings with a stranger be most

carefully considered, and tried friendship duly appreciated. A mean act will soon recoil, and a man of honor will be esteemed. Leave "tricks of trade" to those whose education was never completed. Treat all with respect, confide in few, wrong no man. Be never afraid to say no, and always prompt to acknowledge and rectify a wrong. Leave nothing for to-morrow that should be done to-day. Because a friend is polite, do not think that his time is valueless. Have a place for every thing, and every thing in its place. To preserve long friendship, keep a short credit; the way to get credit is to be punctual; the way to preserve it is not to use it much. Settle often; have short accounts. Trust no man's appearances; they are often deceptive, and assumed for the purpose of obtaining credit. Rogues generally dress well. The rich are generally plain men. Be well satisfied before you give a credit that those to whom you give it are safe men to be trusted.

Time at which Money Doubles at Interest.

| <i>Rate per cent.</i> | <i>Simple Interest.</i> | <i>Compound Interest.</i> |
|-----------------------|-------------------------|---------------------------|
| 10..... | 10 years. | 7 years 100 days. |
| 9..... | 11 years 40 days. | 8 years 16 days. |
| 8..... | 12½ years. | 9 years 2 days. |
| 7..... | 14 years 104 days. | 10 years 89 days. |
| 6..... | 16 years 8 months. | 11 years 327 days. |
| 5..... | 20 years. | 15 years 75 days. |
| 4½..... | 22 years 81 days. | 15 years 273 days. |
| 4..... | 25 years. | 17 years 246 days. |
| 3½..... | 28 years 208 days. | 20 years 54 days. |
| 3..... | 33 years 4 months. | 23 years 164 days. |
| 2½..... | 40 years. | 28 years 26 days. |
| 2..... | 50 years. | 35 years 1 day. |

Legal Brevities.

A note dated on Sunday is void. A note obtained by fraud, or from one intoxicated, is void. If a note be lost or stolen, it does not release the maker, he must pay it. An endorser of a note is exempt from liability, if not served with notice of its dishonor within 24 hours of its non-payment. A note by a minor is void. Notes bear interest only when so stated. Principals are responsible for their agents. Each individual in partnership is responsible for the whole amount of the debts of the firm.

Ignorance of the law excuses no one. It is a fraud to conceal a fraud. It is illegal to compound a felony. The law compels no one to do impossibilities. An agreement without consideration is void. Signatures in lead pencil are good in law. A receipt for money is not legally conclusive. The acts of one partner bind all the others. Contracts made on Sunday cannot be enforced. A contract with a minor is void. A contract made with a lunatic is void. Written contracts concerning land must be under seal

NUMBER OF VESSELS BUILT.

The following table gives the number and tonnage of vessels built in the world, in 1888 and 1889:

The figures for the United States do not include the tonnage built on the lakes, which are as follows: For 1888, 59 vessels with a tonnage of 100,950, and for 1889, 56 vessels with a tonnage of 124,750 were built. This puts lake shipbuilding next to that of the United Kingdom, almost doubling the tonnage of the German Empire turned out during the past two years. The number of boats built in Germany during 1888 and 1889 was, 116, and on the lakes 115, the same number, but having nearly 80,000 more tons, showing that lake boats were on an average one-third larger. Of the 2,429,152 tons shown above, 2,064,800 tons were steel, 181,846 iron, 178,824 wood and 3,681 composite.

| COUNTRIES. | 1888. | | 1889. | |
|----------------------|-----------------|---------------|-----------------|---------------|
| | No- VESSELS. | TON. NAGE. | No. VESSELS. | TON- NAGE. |
| United Kingdom.... | 484 | 776,993 | 656 | 1,180,349 |
| Germany..... | 37 | 39,994 | 79 | 101,984 |
| United States. | 73 | 38,198 | 115 | 84,832 |
| France..... | 14 | 10,721 | 22 | 42,921 |
| British colonies.... | 68 | 17,106 | 75 | 27,368 |
| Denmark..... | 5 | 5,721 | 20 | 11,526 |
| Norway..... | 19 | 11,433 | 32 | 14,640 |
| Netherlands..... | 3 | 5,156 | 10 | 11,033 |
| Italy..... | 8 | 1,798 | 21 | 7,862 |
| Sweden..... | 15 | 4,088 | 25 | 7,084 |
| Greece..... | 15 | 3,086 | 17 | 4,319 |
| Austria..... | 5 | 5,038 | 6 | 1,853 |
| Russia..... | 7 | 1,713 | 7 | 1,830 |
| Other countries.... | 12 | 5,478 | 5 | 1,531 |
| Totals..... | 765 | 926,523 | 1,090 | 1,502,629 |

TAX ON COMMERCIAL TRAVELERS.

The following is a list of places and amount of taxation on commercial travelers: Alabama, \$15.50 per year; Arizona, \$200 per year; Beaufort, S. C., \$10 per visit; Bennettsville, S. C., \$1 per visit; Batesburg, S. C., 75 cents per day; Charleston, S. C., \$10 per month; Cumberland, Md., \$1 per day; Delaware, \$25 per year; Deadwood, D. T., \$5 per week; Darlington, S. C., \$1; East St. Louis, \$2 per day; Elkton, Md., per cent. on stock carried; Florida, \$25 per year; Hartwell, Ga., \$5 per trip; Johnston, S. C., 50 cents per day; Lewistown, Idaho, \$5 per trip; Montana, \$100 per year for each county; Memphis, Tenn., \$10 per week or \$25 per month; Mobile, Ala., \$3 per day or \$7 a week; Natchez, Miss., 25 cents per day; New Orleans, La., \$50 per year; Newport, Ky., \$1 per month; North Carolina, \$100 per year; Nevada, \$100 per year; Orangeburg, S. C., \$2 per day; St. Matthews, S. C., \$1 per day; San Francisco, Cal., \$25 per quarter; Texas, \$35 a year; Tucson, Arizona, \$50 per quarter; Tombstone, Arizona, \$10 per day; Virginia, \$75 per year; Wilmington, N. C., \$3 per day; Washington, D. C., \$200 per year; Walhalla, S. C., \$1 per day.

Durability of Different Woods.

Experiments have been made by driving sticks, made of different woods, each two feet long and one and one-half inches square, into the ground, only one-half an inch projecting outward. It was found that in five years, all those made of oak, elm, ash, fir, soft mahogany, and nearly every variety of pine, were totally rotten. Larch, hard pine and teak wood were decayed on the outside only; while acacia, with the exception of being also slightly attacked on the exterior, was otherwise sound. Hard mahogany and cedar of Lebanon were in tolerably good condition; but only Virginia cedar was found as good as when put in the ground. This is of some importance to builders, showing what wood should be avoided, and what others used by preference in underground work.

The duration of wood, when kept dry, is very great, as

beams still exist which are known to be 1,100 years old. Piles driven by the Romans prior to the Christian era, have been examined of late, and found perfectly sound, after an immersion of nearly 2,000 years.

The wood of some tools will last longer than the metals; as in spades, hoes and plows. In other tools the wood is first gone; as in wagons, wheel-barrows and machines. Such wood should be painted or oiled; the paint not only looks well, but preserves the wood; petroleum oil is as good as any other;

Hardwood stumps decay in five or six years; spruce stumps decay in about the same time; hemlock stumps in eight to nine years; cedar, eight to nine years; pine stumps, never.

Cedar, oak, yellow pine and chestnut are the most durable woods in dry places.

THE STATES AND THE UNION.—THIRTEEN ORIGINAL STATES.

| States. | Ratified the Constitution. | States. | Ratified the Constitution. |
|---------------|----------------------------|----------------|----------------------------|
| 1 Delaware, | 1787, Dec. 7. | 8 S. Carolina, | 1788, May 23. |
| 2 Pennsylv'a, | 1787, Dec. 12. | 9 New Ham. | 1788, June 21. |
| 3 New Jersey | 1787, Dec. 18. | 10 Virginia, | 1788, June 25. |
| 4 Georgia, | 1788, Jan. 2. | 11 New York, | 1788, July 26. |
| 5 Conn. | 1788, Jan. 9. | 12 N. Carolina | 1789, Nov. 21. |
| 6 Mass. | 1788, Feb. 6. | 13 R. Island, | 1790, May 29. |
| 7 Maryland, | 1788, April 28. | | |

STATES ADMITTED TO THE UNION.

| States. | Admitted. | States. | Admitted. |
|---------------|-----------------|----------------|----------------|
| 1 Vermont, | 1791, March 4. | 17 Wisconsin, | 1848, May 29. |
| 2 Kentucky, | 1792, June 1. | 18 California, | 1850, Sept. 9. |
| 3 Tennessee, | 1796, June 1. | 19 Minnesota, | 1858, May 11. |
| 4 Ohio. | 1802, Nov. 29. | 20 Oregon, | 1859, Feb. 14. |
| 5 Louisiana, | 1812, April 30. | 21 Kansas, | 1861, Jan. 29. |
| 6 Indiana, | 1816, Dec. 11. | 22 W. Virginia | 1863, June 19. |
| 7 Mississippi | 1817, Dec. 10. | 23 Nevada, | 1864, Oct. 31. |
| 8 Illinois, | 1818, Dec. 3. | 24 Nebraska, | 1867, March 1. |
| 9 Alabama, | 1819, Dec. 14. | 25 Colorado, | 1876, Aug. 1. |
| 10 Maine, | 1820, March 15. | 26 N. Dakota, | 1889, Nov. 3. |
| 11 Missouri, | 1821, Aug. 10. | 27 S. Dakota, | 1889, Nov. 3. |
| 12 Arkansas, | 1836, June 15. | 28 Montana, | 1889, Nov. 8. |
| 13 Michigan, | 1837, Jan. 26. | 29 Washing'n, | 1889, Nov. 11. |
| 14 Florida, | 1845, March 3. | 30 Idaho, | 1890, July 3. |
| 15 Texas, | 1845, Dec. 29. | 31 Wyoming. | 1890, July 8. |
| 16 Iowa, | 1846, Dec. 28. | | |

RATES OF POSTAGE.

Letters.—Prepaid by stamps, 2 cents each ounce or fraction thereof to all parts of the United States and Canada; forwarded to another postoffice without charge on request of the person addressed; if not called for, returned to the writer free, if indorsed with that request. If the stamp is omitted, the letter is forwarded to the Dead Letter Office, and returned to the writer. For Registering letters the charge is 10 cents additional. Drop letters at letter-carrier offices, 2 cents per ounce or fraction thereof; at other offices, 1 cent per ounce or fraction thereof. On insufficiently prepaid matter mailed in Canada, 3 cents per $\frac{1}{2}$ ounce or fraction thereof. Stamped Postal Cards, furnished only by Government, 1 cent each. If anything except a printed address slip is pasted on a Postal Card, or anything but the address written on the face, letter postage is charged. Postage on all newspapers and periodicals sent from newspaper offices to any part of the United States, to regular subscribers, must be paid in advance at the office of mailing.

Second-Class Matter.—Periodicals issued at regular intervals—at least four times a year—and having a regular list of subscribers, with supplement, sample copies, 1 cent a pound; periodicals, other than weekly, if delivered by letter-carrier, 1 cent each; if over 2 ounces, 2 cents each. When sent by other than publishers, for 4 ounces or less, 1 cent.

Third-Class Matter (not exceeding 4 pounds).—Printed matter, books, proof-sheets, corrected or uncorrected, unsealed circulars, inclosed so as to admit of easy inspection without cutting cords or wrapper, 1 cent for each 2 ounces.

Fourth-Class Matter.—Not exceeding 4 pounds, embracing merchandise and samples, excluding liquids, poisons, greasy, inflammable or explosive articles, live animals, insects, etc., 1 cent an ounce. Postage to Canada and British North American States, 2 cents per ounce; must be prepaid; otherwise, 6 cents.

Number of Years Seeds Retain Their Vitality.

| <i>Vegetables.</i> | <i>Years.</i> |
|---------------------|---------------|
| Artichoke | .5 to 6 |
| Asparagus | .2 to 3 |
| Beans | .2 to 3 |
| Beets | .3 to 4 |
| Broccoli | .5 to 6 |
| Cucumber | .8 to 10 |
| Cauliflower | .5 to 6 |
| Cress | .3 to 4 |
| Carrots | .2 to 3 |
| Celery | .2 to 3 |
| Corn (on cob) | .2 to 3 |
| Endive | .5 to 6 |
| Egg Plant | .1 to 2 |
| Leek | .2 to 3 |
| Lettuce | .3 to 4 |
| Melon | .8 to 10 |
| Mustard | .3 to 4 |
| Okra .. | .3 to 4 |
| Onion | .2 to 3 |
| Pea | .5 to 6 |
| Pumpkin | .8 to 10 |
| Parsley | .2 to 3 |
| Parsnip | .2 to 4 |
| Pepper | .2 to 3 |
| Rhubarb | .3 to 4 |
| Squash | .8 to 10 |
| Spinach | .3 to 4 |
| Turnip | .3 to 6 |
| Tomato | .2 to 3 |

HOW TO MIX PAINTS FOR TINTS.

| | |
|----------------------------------|----------|
| Red and Black makes | Brown |
| Lake and White makes | Rose |
| White and Brown makes | Chestnut |
| White, Blue and Lake makes | Purple |
| Blue and Lead Color makes | Pearl |

| | |
|---|-----------------|
| White and Carmine makes..... | Pink |
| Indigo and Lamp-Black makes..... | Silver Gray |
| White and Lamp-Black makes..... | Lead Color |
| Black and Venetian Red makes..... | Chocolate |
| White and Green makes..... | Bright Green |
| Purple and White makes..... | French White |
| Light Green and Black makes..... | Dark Green |
| White and Green makes..... | Pea Green |
| White and Emerald Green makes..... | Brilliant Green |
| Red and Yellow makes..... | Orange |
| White and Yellow makes..... | Straw Color |
| White, Blue and Black makes..... | Pearl Gray |
| White, Lake and Vermillion makes..... | Flesh Color |
| Umber, White and Venetian Red makes..... | Drab |
| White, Yellow and Venetian Red makes..... | Cream |
| Red, Blue, Black and Red makes..... | Olive |
| Yellow, White and a little Venetian Red makes.... | Buff |

DEGREES OF HEAT AND COLD REQUIRED TO FREEZE, MELT AND BOIL THE FOLLOWING SUBSTANCES.

Degrees of Heat ABOVE ZERO at which the following articles Melt.

| | |
|-------------------|-------|
| Cast Iron..... | 3,500 |
| Glass..... | 2,400 |
| Copper..... | 2,160 |
| Gold..... | 1,983 |
| Brass..... | 1,900 |
| Silver..... | 1,850 |
| Antimony..... | 950 |
| Zinc..... | 780 |
| Lead..... | 590 |
| Bismuth..... | 476 |
| Tin..... | 420 |
| Gutta Percha..... | 150 |
| Lard..... | 96 |
| Ice..... | 35 |

Degrees of Cold ABOVE ZERO at which the following articles Freeze.

| | |
|----------------------------|----|
| Turpentine (Spirits) | 15 |
| Strong Wine..... | 20 |
| Milk..... | 29 |
| Water | 32 |

Degrees of Heat ABOVE ZERO at which the following articles Boil.

| | |
|------------------|-----|
| Blood Heat..... | 98 |
| Alcohol..... | 175 |
| Water | 210 |
| Petroleum..... | 305 |
| Linseed Oil..... | 600 |
| Quicksilver..... | 630 |

Tables of Weights and Measures.

CUBIC MEASURE.

1,728 cubic inches 1 cubic foot, 27 cubic feet 1 cubic yard, 128 cubic feet 1 cord (wood), 40 cubic feet 1 ton (shipping), 2,150.42 cubic inches 1 standard bushel, 268.8 cubic inches 1 standard gallon, 1 cubic foot four-fifths of a bushel.

SURVEYOR'S MEASURE.

7.92 inches 1 link, 25 links 1 rod, 4 rods 1 chain, 10 square chains or 160 square rods 1 acre, 640 acres 1 square mile.

LONG MEASURE—DISTANCE.

3 barleycorns 1 inch, 12 inches 1 foot, 3 feet 1 yard, 5 1/2 yards 1 rod, 40 rods 1 furlong, 8 furlongs 1 mile

DRY MEASURE.

2 pints make 1 quart, 8 quarts make 1 peck, 4 pecks make 1 bushel, 36 bushels make 1 chaldron.

LIQUID OR WINE MEASURE.

4 gills make 1 pint, 2 pints make 1 quart, 4 quarts make 1 gallon, 31 1/2 gallons make 1 barrel, 2 barrels make 1 hogshead.

APOTHECARIES' WEIGHT.

20 grains make 1 scruple, 3 scruples make 1 drachm, 8 drachms make 1 ounce, 12 ounces make 1 pound.

TROY WEIGHT.

24 grains make 1 pennyweight, 20 pennyweight make 1 ounce. By this weight, gold, silver and jewels only are weighed. The ounce and pound in this are same as in Apothecaries' weight.

AVOIRDUPOIS WEIGHT.

6 drachms make 1 ounce, 16 ounces make 1 pound, 25 pounds make 1 quarter, 4 quarters make 100 weight, 2,000 pounds make 1 ton.

CIRCULAR MEASURE.

60 seconds make 1 minute, 60 minutes make 1 degree, 30 degrees make 1 sign, 90 degrees make 1 quadrant, 4 quadrants or 360 degrees make 1 circle.

TIME MEASURE.

60 seconds make 1 minute, 60 minutes make 1 hour, 24 hours make 1 day, 7 days make 1 week, 4 weeks make 1 lunar month, 28, 29, 30, or 31 days make 1 calendar month (30 days make 1 month in computing interest), 52 weeks and 1 day, or 12 calendar months make 1 year, 365 days, 5 hours, 48 minutes, and 49 seconds make 1 solar year.

SQUARE MEASURE.

144 square inches 1 square foot, 9 square feet 1 square yard, $30\frac{1}{4}$ square yards 1 square rod, 40 square rods 1 rood, 4 roods 1 acre.

CLOTH MEASURE.

$2\frac{1}{4}$ inches 1 nail, 4 nails 1 quarter, 4 quarters 1 yard.

MISCELLANEOUS.

3 inches 1 palm, 4 inches 1 hand, 6 inches 1 span, 18 inches 1 cubit, 21.8 inches 1 Bible cubit, $2\frac{1}{2}$ feet 1 military pace.

THE MONEY OF THE WORLD.

The director of the mint has prepared a series of interesting tables showing the gold and silver estimated and officially reported to be in circulation as money throughout the world, and the specie holdings of the leading European banks.

| COUNTRY. | Gold. | Silver. |
|-----------------------|-----------------|-----------------|
| United States..... | \$702,018,869 | \$482,071,346 |
| United Kingdom..... | 550,000,000 | 100,000,000 |
| France..... | 900,000,000 | 700,000,000 |
| Germany..... | 500,000,000 | 145,000,000 |
| Belgium..... | 65,000,000 | 55,000,000 |
| Italy..... | 140,000,000 | 60,000,000 |
| Switzerland..... | 15,000,000 | 15,000,000 |
| Greece..... | 2,000,000 | 4,000,000 |
| Spain..... | 100,000,000 | 125,000,000 |
| Portugal..... | 40,000,000 | 10,000,000 |
| Austria-Hungary..... | 40,000,000 | 90,000,000 |
| Netherlands..... | 25,000,000 | 65,000,000 |
| Scandinavian Union... | 32,000,000 | 10,000,000 |
| Russia..... | 190,000,000 | 60,000,000 |
| Turkey..... | 50,000,000 | 45,000,000 |
| Australia..... | 100,000,000 | 7,000,000 |
| Egypt..... | 100,000,000 | 15,000,000 |
| Mexico..... | 5,000,000 | 50,000,000 |
| Central America..... | ..... | 500,000 |
| South America..... | 45,000,000 | 25,000,000 |
| Japan..... | 90,000,000 | 50,000,000 |
| India..... | ..... | 900,000,000 |
| China..... | ..... | 700,000,000 |
| The Straits..... | ..... | 100,000,000 |
| Canada..... | 16,000,000 | 5,000,000 |
| Cuba, Hayti, etc..... | 20,000,000 | 2,000,000 |
| Totals..... | \$3,727,018,869 | \$3,820,571,346 |

The silver money is classified in the following table into that which is full legal tender and that which is tender for but limited amounts.

| COUNTRY. | Full Legal Tender. | Limited Tender. |
|-----------------------|--------------------|-----------------|
| United Kingdom..... | ..... | \$100,000,000 |
| France..... | \$950,000,000 | 50,000,000 |
| Germany..... | 102,000,000 | 43,000,000 |
| Belgium..... | 48,400,000 | 6,600,000 |
| Italy..... | 25,800,000 | 34,200,000 |
| Switzerland..... | 11,400,000 | 3,600,000 |
| Greece..... | 1,800,000 | 2,200,000 |
| Spain..... | 90,000,000 | 35,000,000 |
| Portugal..... | ..... | 10,000,000 |
| Austria-Hungary..... | 90,000,000 | ..... |
| Netherlands..... | 61,800,000 | 3,200,000 |
| Scandinavian Union... | ..... | 10,000,000 |
| Russia..... | 22,000,000 | 38,000,000 |
| Turkey..... | ..... | 45,000,000 |
| Australia..... | ..... | 7,000,000 |
| Egypt..... | ..... | 15,000,000 |
| Mexico..... | 50,000,000 | ..... |
| Central America..... | 500,000 | ..... |
| South America..... | 25,000,000 | ..... |
| Japan..... | 50,000,000 | ..... |
| India..... | 900,000,000 | ..... |
| China..... | 700,000,000 | ..... |
| The Straits..... | 100,000,000 | ..... |
| Canada..... | ..... | 5,000,000 |
| Cuba, Hayti, etc..... | 1,200,000 | 800,000 |
| Totals..... | \$2,929,900,000 | \$408,600,000 |

The total stock of full legal-tender silver coin in Europe is given at \$1,101,400,000.

POLITICAL INFORMATION.

Result of the Electoral College proceedings by States from 1789 to and including 1885.

1789, WASHINGTON AND ADAMS—Washington had the votes of all the states, viz., New Hampshire, Massachusetts, Connecticut, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, South Carolina and Georgia; total, 69 votes.

Adams had all of New Hampshire, Massachusetts, 5 of the 7 of Connecticut, 1 of the 6 of New Jersey, 8 of the 10 of Pennsylvania, 5 of the 10 of Virginia; total, 34.

1793, WASHINGTON AND ADAMS—Washington had the votes of all the states, viz., New Hampshire, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, Kentucky, North Carolina, South Carolina and Georgia; total, 132.

Adams carried all these states with the exception of New York, Virginia, Kentucky, North Carolina and Georgia; total, 77 votes.

1797, ADAMS AND JEFFERSON—Adams had the votes of New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New York, New Jersey, Delaware, 1 of the 15 of Pennsylvania, 1 of the 20 of Virginia, 1 of the 12 of North Carolina, and 7 of the 11 of Maryland; total 71.

Thomas Jefferson had 14 of the 15 votes of Pennsylvania, 4 of the 11 of Maryland, 20 of the 21 of Virginia, Kentucky, 11 of the 12 of North Carolina, Tennessee, Georgia and South Carolina; total, 68.

1801, JEFFERSON AND BURR—Had the votes of the states of New York, 8 of the 15 of Pennsylvania, 5 of the 10 of Maryland, Virginia, Kentucky, 8 of the 12 of North Carolina, Tennessee, South Carolina and Georgia; total, 73. House decided Jefferson President, and Burr Vice-President.

ADAMS AND PINCKNEY—Had the votes of the states of New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New Jersey, 7 of the 15 of Pennsylvania, Delaware, 5 of the 10 of Maryland, and 4 of the 12 of North Carolina; total, 65.

1805, JEFFERSON AND CLINTON—Had the votes of states of New Hampshire, Massachusetts, Rhode Island, Vermont, New York, New Jersey, Pennsylvania, Maryland, Virginia, North Carolina, South Carolina, Georgia, Tennessee, Kentucky and Ohio; total, 162.

PINCKNEY AND KING—Had the votes of states Connecticut, Delaware, and 2 of the 11 of Maryland; total, 14.

1809, MADISON AND CLINTON—Had the votes of the states of Vermont, New York, New Jersey, Pennsylvania, 9 of the 11 of Maryland, Virginia, 11 of the 14 of North Carolina, South Carolina, Georgia, Kentucky, Tennessee and Ohio; total, 122.

PINCKNEY AND KING—Had the votes of the states of New York, Massachusetts, Rhode Island, Connecticut, Delaware, 2 of the 11 of Maryland and 3 of the 14 of North Carolina; total, 47.

1813, MADISON AND GERRY—Carried Vermont, Pennsylvania,

6 of the 11 of Maryland, Virginia, North Carolina, South Carolina, Georgia, Kentucky, Tennessee, Ohio and Louisiana; total 128.

CLINTON AND INGERSOLL—Had the votes of the states of New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Delaware and 5 of the 11 of Maryland; total 89.

1817, MONROE AND TOMPKINS—Had the votes of the states of New Hampshire, Rhode Island, Vermont, New York, New Jersey, Pennsylvania, Maryland, Virginia, North Carolina, South Carolina, Georgia, Kentucky, Tennessee, Ohio, Louisiana and Indiana; total 183.

KING AND HOWARD—Had the votes of the states of Massachusetts, Connecticut and Delaware; total 34.

1821, MONROE AND TOMPKINS—Had the votes of every state in the Union; total 231.

ADAMS AND STOCKTON—Adams had 1 vote of the 8 of New Hampshire, and Stockton 8 of the 15 of Massachusetts.

1825, ADAMS AND CALHOUN—Had the votes of the states of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, 26 of the 36 of New York, 1 of the 3 of Delaware, 3 of the 11 of Maryland, 2 of the 5 of Louisiana, and 1 of the 3 of Illinois; total 84 for Adams. Calhoun for Vice-President carried several states that Adams did not carry, and had a total of 182 votes.

CRAWFORD—Had 5 of the 36 votes of New York, 2 of the 3 of Delaware, and 1 of the 11 of Maryland, Virginia and Georgia; total 41.

JACKSON—Had 1 of the 36 votes of New York, New Jersey, Pennsylvania, 7 of the 11 of Maryland, North Carolina, South Carolina, Tennessee, 3 of the 5 of Louisiana, Mississippi, Indiana, Illinois and Alabama; total 99.

CLAY—Had 4 of the 36 votes of New York, Kentucky, Ohio and Missouri; total 37.

No choice by the electoral college, it devolving upon House of Representatives. A choice was reached on first ballot as follows: Adams—Connecticut, Illinois, Kentucky, Louisiana, Maine, Maryland, Massachusetts, Missouri, New Hampshire, New York, Ohio, Rhode Island and Vermont; 13 states. Jackson—Alabama, Indiana, Missouri, New Jersey, Pennsylvania, South Carolina and Tennessee; 7 states. Crawford—Delaware, Georgia, North Carolina and Virginia; 4 states.

1829—JACKSON AND CALHOUN—Had 1 of the votes of the 9 of Maine, 20 of the 36 of New York, Pennsylvania, 5 of the 11 of Maryland, Virginia, North Carolina, South Carolina, Georgia, Kentucky, Tennessee, Ohio, Indiana, Mississippi, Illinois, Alabama and Missouri; total 178.

ADAMS AND RUSH—Had 8 of the 9 votes of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, 16 of the 36 of New York, New Jersey, Delaware, and 6 of the 11 of Maryland; total 83.

1833, JACKSON AND VAN BUREN—Had the votes of Maine, New Hampshire, New York, New Jersey, Pennsylvania, 3 of the 8 of Maryland, Virginia, North Carolina, Georgia, Tennessee,

Ohio, Louisiana, Mississippi, Indiana, Illinois, Alabama and Missouri; total 219.

CLAY AND SERGEANT—Had the votes of the states of Massachusetts, Rhode Island, Connecticut, Delaware, 5 of the 8 of Maryland, and Kentucky; total 49.

1837, VAN BUREN AND JOHNSON—Had the votes of the states of Maine, New Hampshire, Rhode Island, Connecticut, New York, Pennsylvania, Virginia, North Carolina, Louisiana, Mississippi, Illinois, Alabama, Missouri, Arkansas and Michigan; total 170.

HARRISON AND GRANGER—Had the votes of the states of Vermont, New Jersey, Delaware, Maryland, Kentucky, Ohio and Indiana; total 73.

1841, HARRISON AND TYLER—Had the votes of the states of Maine, Massachusetts, Rhode Island, Connecticut, Vermont, New York, New Jersey, Pennsylvania, Delaware, Maryland, North Carolina, Georgia, Kentucky, Tennessee, Ohio, Louisiana, Mississippi, Indiana and Michigan; total 234.

VAN BUREN—Had the votes of the states of New Hampshire, Virginia, South Carolina, Illinois, Alabama, Missouri and Arkansas; total 60.

1845, POLK AND DALLAS—Had the votes of the states of Maine, New Hampshire, New York, Pennsylvania, Virginia, South Carolina, Georgia, Louisiana, Mississippi, Indiana, Illinois, Alabama, Missouri, Arkansas and Michigan; total 170.

CLAY AND FRELINGHUYSEN—Had the votes of the states of Rhode Island, Connecticut, Vermont, New Jersey, Delaware, Maryland, North Carolina, Kentucky, Tennessee and Ohio; total 105.

1849, TAYLOR AND FILLMORE—Had the votes of the states of Massachusetts, Rhode Island, Connecticut, Vermont, New York, New Jersey, Pennsylvania, Delaware, Maryland, North Carolina, Georgia, Kentucky, Tennessee, Louisiana and Florida; total 163.

CASS AND BUTLER—Had the votes of the states of Maine, New Hampshire, Virginia, South Carolina, Ohio, Mississippi, Indiana, Illinois, Alabama, Missouri, Arkansas, Michigan, Texas, Iowa and Wisconsin; total 127.

1853, PIERCE AND KING—Had the votes of the states of Maine, New Hampshire, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Ohio, Louisiana, Mississippi, Indiana, Illinois, Alabama, Missouri, Arkansas, Michigan, Florida, Texas, Iowa, Wisconsin and California; total 254.

SCOTT AND GRAHAM—Had the votes of the states of Massachusetts, Vermont, Kentucky and Tennessee; total 42.

() 1857, BUCHANAN AND BRECKINRIDGE—Had the votes of the states of New Jersey, Pennsylvania, Delaware, Virginia, North Carolina, South Carolina, Georgia, Kentucky, Tennessee, Louisiana, Mississippi, Indiana, Illinois, Alabama, Missouri, Arkansas, Florida, Texas and California; total 174.

FREMONT AND DAYTON—Had the votes of the states of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut,

Vermont, New York, Ohio, Michigan, Iowa and Wisconsin; total 114.

FILLMORE AND DONELSON—Had the votes of the state of Maryland; total 8.

1861, LINCOLN AND HAMLIN—Had the votes of the states of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New York, 4 of the 7 of New Jersey, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Iowa, Wisconsin, California, Minnesota and Oregon; total 180.

BRECKINRIDGE AND LANE—Had the votes of the states of Delaware, Maryland, North Carolina, South Carolina, Georgia, Louisiana, Mississippi, Alabama, Arkansas, Florida and Texas; total 72.

DOUGLAS AND JOHNSON—Had the votes of the states of Missouri, and 3 of the 7 of New Jersey; total 12.

BELL AND EVERETT—Had the votes of the states of Virginia, Kentucky and Tennessee; total 39.

1865, LINCOLN AND JOHNSON—Had the votes of the states of Maine, New Hampshire, Massachusetts, Rhode Island, Connecticut, Vermont, New York, Pennsylvania, Maryland, Ohio, Indiana, Illinois, Missouri, Michigan, Wisconsin, Iowa, California, Minnesota, Oregon, Kansas, West Virginia and Nebraska; total 212.

MCCLELLAN AND PENDLETON—Had the votes of the states of New Jersey, Delaware and Kentucky; total 21.

Eleven states did not vote, viz.: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia.

1869, GRANT AND COLFAX—Had the votes of the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, Pennsylvania, North Carolina, South Carolina, Alabama, Ohio, Tennessee, Indiana, Illinois, Missouri, Arkansas, Michigan, Florida, Iowa, Wisconsin, California, Minnesota, Kansas, West Virginia, Nevada and Nebraska; total 214.

SEYMOUR AND BLAIR—Had the votes of the states of New York, New Jersey, Delaware, Maryland, Georgia, Louisiana, Kentucky and Oregon; total 80.

Three states did not vote, viz.: Mississippi, Texas and Virginia.

1873, GRANT AND WILSON—Had the votes of the states of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Virginia, North Carolina, South Carolina, Alabama, Ohio, Indiana, Illinois, Mississippi, Michigan, Florida, Iowa, Wisconsin, California, Minnesota, Oregon, Kansas, West Virginia, Nebraska and Nevada; total 286.

GREELEY AND BROWN—Had the votes of the states of Maryland, Georgia, Kentucky, Tennessee, Missouri and Texas; total 63.

Three electoral votes of Georgia cast for Greeley, and the votes of Arkansas, 6, and Louisiana, 8, cast for Grant, were rejected.

1877, HAYES AND WHEELER—Had the votes of the states of

Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Pennsylvania, South Carolina, Ohio, Louisiana, Illinois, Michigan, Florida, Iowa, Wisconsin, California, Minnesota, Oregon, Kansas, Nevada, Nebraska and Colorado; total 185.

TILDEN AND HENDRICKS—Had votes of Connecticut, New York, New Jersey, Delaware, Maryland, Virginia, North Carolina, Georgia, Alabama, Kentucky, Tennessee, Indiana, Missouri, Arkansas, Mississippi, Texas and West Virginia; total 184.

1881. GARFIELD AND ARTHUR—Had votes of Maine, New Hampshire, Vermont, Massachusetts, Rhode Island, Connecticut, New York, Pennsylvania, Ohio, Indiana, Illinois, Michigan, Iowa, Wisconsin, 1 of the 6 of California, Minnesota, Oregon, Kansas, Nebraska and Colorado; total 214.

HANCOCK AND ENGLISH—Had votes of New Jersey, Delaware, Maryland, Virginia, North Carolina, South Carolina, Georgia, Alabama, Louisiana, Kentucky, Tennessee, Missouri, Arkansas, Mississippi, Florida, Texas, 5 of the 6 of California, West Virginia and Nebraska; total 155.

1884. CLEVELAND AND HENDRICKS—Had votes of Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Indiana, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Jersey, New York, North Carolina, South Carolina, Tennessee, Texas, Virginia, West Virginia; total 203.

BLAINE AND LOGAN—Had votes of California, Colorado, Illinois, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, Wisconsin; total 166.

1888. HARRISON AND MORTON—Had votes of California, Colorado, Illinois, Indiana, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Nebraska, Nevada, New Hampshire, New York, Ohio, Oregon, Pennsylvania, Rhode Island, Vermont, Wisconsin; total 233.

CLEVELAND AND THURMAN—Had votes of Alabama, Arkansas, Connecticut, Delaware, Florida, Georgia, Kentucky, Louisiana, Maryland, Mississippi, Missouri, New Jersey, North Carolina, South Carolina, Tennessee, Texas, Virginia, W. Va.; total 168.

VOTE BY STATES.

ALABAMA—1824, Dem. maj. 5,280; 1828, Dem. maj. 15,200; 1836, Dem. maj. 3,431; 1840, Dem. maj. 5,520; 1844, Dem. maj. 11,656; 1848, Dem. maj. 881; 1852, Dem. maj. 11,843; 1856, Dem. maj. 18,187; 1860, Dem. maj. 7,355; 1868, Rep. maj. 4,278; 1872, Rep. maj. 10,828; 1876, Dem. maj. 33,772; 1880, Dem. maj. 29,867; 1884, Dem. plur. 33,529; 1888, Dem. plur. 60,113.

ARKANSAS—1836, Dem. maj. 1,162; 1840, Dem. maj. 889; 1844, Dem. maj. 4,042; 1848, Dem. maj. 1,712; 1852, Dem. maj. 4,769; 1856, Dem. maj. 11,123; 1860, Dem. maj. 3,411; 1868, Rep. maj. 3,034; 1872, Rep. maj. 3,446; 1876, Dem. maj. 19,113; 1880, Dem. maj. 14,749; 1884, Dem. plur. 22,208; 1888, Dem. plur. 27,210.

CALIFORNIA—1852, Dem. maj. 5,119; 1856, Dem. plur. 17,200; 1870, Rep. plur. 657; 1864, Rep. maj. 18,293; 1868, Rep. maj. 506; 1872, Rep. maj. 12,234; 1876, Rep. maj. 2,738; 1880, Dem. plur. 78; 1884, Rep. plur. 13,128; 1888, Rep. plur. 7,080.

COLORADO—1880, Rep maj. 1,368; 1884, Rep maj. 8,567; 1888, Rep plur. 13,224.

CONNECTICUT—1824, Loose Constructionist (Rep.) majority 5,609; 1828, Loose Constructionist (Rep.) majority 9,381; 1832, Loose Constructionist (Rep.) majority 6,280; 1836, Dem. majority 768; 1840, Whig (Rep.) majority 6,231; 1844, Whig (Rep.) majority 1,048; 1848, Whig (Rep.) plurality 3,268; 1852, Dem. plurality 2,892; 1856, Rep. majority 5,105; 1860, Rep. majority 10,238; 1864, Rep. majority 2,406; 1868, Rep. majority 3,043; 1872, Rep. majority 4,348; 1876, Dem majority 1,712; 1880, Rep. majority 1,788; 1884, Dem plurality 1,274; 1888, Dem plurality 336.

DELAWARE—1828, Loose Constructionist (Rep.) majority 420; 1832, Loose Constructionist (Rep.) majority 166; 1836, Whig (Rep.) majority 583; 1840, Whig (Rep.) majority 1,083; 1844, Whig (Rep.) majority 282; 1848, Whig (Rep.) majority 443; 1852, Dem. plurality 25; 1856, Dem. majority 1,521; 1860, Dem. plurality 3,483; 1864, Dem. majority 612; 1868, Dem. majority 3,357; 1872, Rep. majority 422; 1876, Dem. majority 2,629; 1880, Dem. majority 1,023; 1884, Dem plurality 423; 1888, Dem plurality 3,441.

FLORIDA—1848, Whig (Rep.) majority 1,269; 1852, Dem. majority 1,443; 1856, Dem majority 1,525; 1860, Dem. majority 2,739; 1872, Rep. majority 2,336; 1876, Rep. majority 926; 1880, Dem maj. 4,310; 1884, Dem plur. 3,738; 1888, Dem plur. 12,002.

GEORGIA—1836, Whig (Rep.) majority 2,804; 1840, Whig (Rep.) majority 8,328; 1844, Dem majority 2,071; 1848, Whig (Rep.) majority 2,742; 1852, Dem majority 18,045; 1856, Dem majority 14,350; 1860, Dem plurality 9,003; 1868, Dem majority 45,588; 1872, Dem maj. 9,806; 1876, Dem maj. 79,642; 1880, Dem maj. 4,199; 1884, Dem plur. 46,961; 1888, Dem plur. 60,029.

ILLINOIS—1824, Dem plurality 359; 1828, Dem majority 5,182; 1832, Dem majority 8,718; 1836, Dem majority 3,114; 1840, Dem majority 1,790; 1844, Dem majority 8,822; 1848, Dem plurality 3,253; 1852, Dem majority 5,697; 1856, Dem plurality 9,159; 1860, Rep majority 5,629; 1864, Rep majority 30,766; 1868, Rep majority 51,160; 1872, Rep majority 53,948; 1876, Rep majority 1,971; 1880, R. maj. 14,358; 1884, R. plur. 25,122; 1888, R. plur. 22,042.

INDIANA—1824, Dem plurality 2,028; 1828, Dem majority 5,185; 1832, Dem majority 16,080; 1836, Whig (Rep) majority 8,801; 1840, Whig (Rep) majority 13,607; 1844, Dem majority 508; 1848, Dem plurality 4,838; 1852, Dem majority 7,510; 1856, Dem majority 1,909; 1860, Rep majority 5,923; 1864, Rep majority 20,189; 1868, Rep majority 9,568; 1872, Rep majority 21,092; 1876, Dem plurality 5,515; 1880, Rep plurality 6,641; 1884, Dem plurality 6,527; 1888, Rep plurality 2,348.

IOWA—1848, Dem plurality 1,009; 1852, Dem majority 303; 1856, Rep plurality 7,784; 1860, Rep majority 12,487; 1864, Rep majority 39,479; 1868, Rep majority 46,359; 1872, Rep majority 58,149; 1876, Rep majority 50,191; 1880, Rep majority 45,732; 1884, Rep plurality 19,796; 1888, Rep plurality 4,721.

KANSAS—1864, Rep majority 12,750; 1868, Rep majority

17,058; 1872, Rep. maj. 33,482; 1876, Rep. maj. 32,511; 1880, Rep. maj. 42,021; 1884, Rep. plur. 64,274; 1888, Rep. plur. 79,961.

KENTUCKY—1824, Loose Constructionist (Rep) majority 10,329; 1828, Dem majority 7,912; 1832, Loose Constructionist (Rep) majority 7,149; 1836, Whig (Rep) majority 5,520; 1840, Whig (Rep) majority 25,873; 1844, Whig (Rep) majority 9,267; 1848, Whig (Rep) majority 17,421; 1852, Whig (Rep) majority 2,997; 1856, Dem majority 6,912; 1860, Constitutional Union plurality 12,915; 1864, Dem majority 36,515; 1868, Dem majority 76,324; 1872, Dem maj. 8,855; 1876, Dem maj. 59,772; 1880, Dem maj. 31,951; 1884, Dem plur. 34,839; 1888, Dem plur. 38,666.

LOUISIANA—1828, Dem. majority 508; 1832, Dem. majority 1,521; 1836, Dem. majority 270; 1840, Whig (Rep.) majority 3,680; 1844, Dem. majority 699; 1848, Whig (Rep.) majority 2,847; 1852, Dem. majority 1,392; 1856, Dem. majority 1,455; 1860, Dem. plurality 2,477; 1868, Dem. majority 46,962; 1872, Rep. majority 14,634; 1876, Rep. majority 4,499; 1880, Dem. majority 33,419; 1884, Dem plur. 16,250; 1888, Dem plur. 54,760.

MAINE—1824, Loose Constructionist (Rep.) majority 4,540; 1828, Loose Constructionist (Rep.) majority 6,848; 1840, Whig (Rep.) majority 217; 1844, Dem. majority 6,505; 1848, Dem. plurality 4,755; 1852, Dem. majority 1,036; 1856, Rep. majority 24,974; 1860, Rep. majority 27,704; 1864, Rep. majority 17,592; 1868, Rep. majority 28,033; 1872, Rep. majority 32,355; 1876, Rep. majority 15,814; 1880, Rep. majority 4,460; 1884, Rep. plurality 20,069; 1888, Rep plur. 23,252.

MARYLAND—1824, Loose Constructionist (Rep.) plurality 109; 1828, Loose Constructionist (Rep.) majority 1,181; 1832, Loose Constructionist (Rep.) majority 4; 1836, Whig (Rep.) majority 3,685; 1840, Whig (Rep.) majority 4,776; 1844, Whig (Rep.) majority 3,308; 1848, Whig (Rep.) majority 3,049; 1852, Dem. majority 4,900; 1856, Know-Nothing majority 8,064; 1860, Dem. plurality 722; 1864, Rep. majority 7,414; 1868, Dem. majority 31,919; 1872, Dem. majority 908; 1876, Dem. majority 19,756; 1880, Dem. majority 15,191; 1884, Dem plur. 11,305; 1888, Dem. plur. 6,182.

MASSACHUSETTS—1824, Loose Constructionist (Rep.) majority 24,071; 1828, Loose Constructionist (Rep.) majority 22,817; 1832, Loose Constructionist (Rep.) majority 18,458; 1836, Whig (Rep.) majority 7,592; 1840, Whig (Rep.) majority 19,305; 1844, Whig (Rep.) majority 2,712; 1848, Whig (Rep.) plurality 23,014; 1852, Whig (Rep.) plurality 8,114; 1856, Rep. majority 49,324; 1860, Rep. majority 43,981; 1864, Rep. majority 77,997; 1868, Rep. majority 77,069; 1872, Rep. majority 74,212; 1876, Rep. majority 40,423; 1880, Rep maj. 49,097; 1884, Rep plur. 24,372; 1888, Rep plur., 31,457.

MICHIGAN—1836, Dem. majority 3,360; 1840, Whig (Rep.) majority 1,514; 1844, Dem. plurality 3,423; 1848, Dem. plurality 6,747; 1852, Dem. majority 746; 1856, Rep. majority 17,966; 1860, Rep. majority 22,213; 1864, Rep. majority 16,917; 1868, Rep. majority 31,481; 1872, Rep. majority 55,968; 1876, Rep.

majority 15,542; 1880, Rep. majority 19,095; 1884, Rep. plurality 3,308; 1888, Rep. plurality 22,903.

MINNESOTA—1860, Rep. majority 9,339; 1864, Rep. majority 7,685; 1868, Rep. majority 15,470; 1872, Rep. majority 20,694; 1876, Rep. majority 21,780; 1880, Rep. majority 40,588; 1884, Rep. plurality 38,738; 1888, Rep. plurality 36,695.

MISSISSIPPI—1824, Dem. majority 1,421; 1828, Dem. majority 5,182; 1832, Dem. majority 5,919; 1836, Dem. majority 291; 1840, Whig (Rep) majority 2,523; 1844, Dem. majority 5,920; 1848, Dem. majority 615; 1852, Dem. majority 9,328; 1856, Dem. majority 11,251; 1860, Dem. majority 12,474; 1872, Rep. majority 34,887; 1876, Dem. majority 59,568; 1880, Dem. majority 35,099; 1884, Dem. plurality 33,001; 1888, Dem. plurality 55,375.

MISSOURI—1824, Loose Constructionist (Rep) majority 103; 1828, Dem. majority 4,810; 1832, Dem. majority 5,192; 1836, Dem. majority 2,658; 1840, Dem. majority 6,788; 1844, Dem. majority 10,118; 1848, Dem. majority 7,406; 1852, Dem. majority 8,369; 1856, Dem. majority 9,640; 1860, Dem. plurality 429; 1864, Rep. majority 41,072; 1868, Rep. majority 21,232; 1872, Dem. majority 29,809; 1876, Dem. majority 54,389; 1880, Dem. majority 19,997; 1884, Dem. plurality 33,059; 1888, Dem. plurality 25,701.

NEBRASKA—1868, Rep. majority 4,290; 1872, Rep. majority 10,517; 1876, Rep. majority 10,326; 1880, Rep. majority 22,603; 1884, Rep. plurality 22,512; 1888, Rep. plurality 27,873.

NEVADA—1864, Rep. majority 3,232; 1868, Rep. majority 1,262; 1882, Rep. majority 2,177; 1876, Rep. majority 1,075; 1880, Dem. majority 879; 1884, Rep. plurality 1,615; 1888, Rep. plurality 1,939.

NEW HAMPSHIRE—1824, Loose Constructionist (Rep) majority 3,464; 1828, Loose Constructionist (Rep) majority 3,384; 1832, Dem. majority 6,476; 1836, Dem. plurality 12,494; 1840, Dem. majority 6,386; 1844, Dem. majority 5,133; 1848, Dem. majority 5,422; 1852, Dem. majority 7,155; 1856, Rep. majority 5,134; 1860, Rep. majority 9,085; 1864, Rep. majority 3,529; 1868, Rep. majority 6,967; 1872, Rep. majority 5,444; 1876, Rep. majority 2,954; 1880, Rep. maj. 3,530; 1884, Rep. plur. 4,059; 1888, Rep. plur. 2,370.

NEW JERSEY—1824, Dem. majority 679; 1820, Loose Constructionist (Rep) majority 1,808; 1832, Dem. majority 463; 1836, Whig (Rep) majority 545; 1840, Whig (Rep) majority 2,248; 1844, Whig (Rep) majority 692; 1848, Whig (Rep) majority 2,285; 1852, Dem. majority 5,399; 1856, Dem. plurality 18,605; 1860, Dem. majority 4,477; 1864, Dem. majority 7,301; 1868, Dem. majority 2,870; 1872, Rep. majority 14,570; 1876, Dem. majority 11,690; 1880, Dem. plurality 2,010; 1884, Dem. plurality 4,412; 1888, Dem. plurality 7,149.

NEW YORK—1828, Dem. majority 4,350; 1832, Dem. majority 13,601; 1836, Dem. majority 28,272; 1840, Whig (Rep) majority 10,500; 1844, Dem. plurality 5,106; 1848, Whig (Rep) majority 98,093; 1852, Dem. majority 1,872; 1856, Rep. plurality 80,129; 1860, Rep. majority 50,136; 1864, Rep. majority 6,749; 1868, Dem. majority 10,000; 1872, Rep. majority 51,800; 1876, Dem. majority 26,568; 1880, Rep. majority 8,660; 1884, Dem. plurality 1,148; 1888, Rep. plurality 14,373.

NORTH CAROLINA—1824, Dem. majority 4,794; 1828, Dem. majority 23,939; 1832, Dem. majority 20,299; 1836, Dem. majority

3,284; 1840, Whig (Rep) majority 12,158; 1844, Whig (Rep) majority 3,945; 1848, Whig (Rep) majority 8,681; 1852, Dem majority 627; 1856, Dem majority 11,360; 1860, Dem majority 648; 1868, Rep. majority 12,168; 1872, Rep majority 24,675; 1876, Dem majority 17,010; 1880, Dem. majority 8,326; 1884, Dem plurality 17,884; 1888, Dem plurality 13,118.

OHIO—1824, Loose Constructionist (Rep) plurality 798; 1828, Dem majority 4,201; 1832, Dem majority 4,707; 1836, Whig (Rep) majority 8,457; 1840, Whig (Rep) majority 22,472; 1844, Whig (Rep) plurality 5,940; 1848, Dem plurality 16,415; 1852, Dem plurality 16,694; 1856, Rep plurality 16,623; 1860, Rep majority 20,779; 1864, Rep majority 59,586; 1868, Rep majority 41,617; 1872, Rep majority 34,268; 1876, Rep majority 2,747; 1880, Rep majority 27,771; 1884, Rep plur., 31,802; 1888, Rep plur. 19,599.

OREGON—1860, Rep plurality 1,318; 1864, Rep majority 1,431; 1868, Dem majority 164; 1872, Rep majority 3,517; 1876, Rep majority 547; 1880, Rep majority 422; 1884, Rep plurality 2,256; 1888, Rep plurality 6,769.

PENNSYLVANIA—1824, Dem majority 24,845; 1828, Dem majority 50,804; 1832, Dem majority 34,267; 1836, Dem majority 4,364; 1840, Whig (Rep) majority 2; 1844, Dem. majority 3,194; 1848, Whig (Rep) majority 3,074; 1852, Dem majority 10,869; 1856, Dem majority 1,025; 1860, Rep majority 59,618; 1864, Rep majority 20,075; 1868, Rep majority 28,898; 1872, Rep majority 135,918; 1876, Rep majority 9,375; 1880, Rep majority 16,608; 1884, Rep plurality 81,019; 1888, Rep plurality 79,458.

RHODE ISLAND—1824, Loose Constructionist (Rep) majority 1,945; 1828, Loose Constructionist (Rep) majority 1,933; 1832, Loose Constructionist (Rep) majority 684; 1836, Dem majority 254; 1840, Whig (Rep) majority 1,935; 1844, Whig (Rep) majority 2,348; 1848, Whig (Rep) majority 2,403; 1852, Dem majority 465; 1856, Rep majority 3,112; 1860, Rep majority 4,537; 1864, Rep. majority 5,222; 1868, Rep majority 6,445; 1872, Rep majority 8,336; 1876, Rep majority 4,947; 1880, Rep majority 7,180; 1884, Rep plurality 6,639; 1888, Rep plurality 4,427.

SOUTH CAROLINA—1868, Rep majority 17,064; 1872, Rep majority 49,400; 1876, Rep majority 964; 1880, Dem majority 54,241; 1884, Dem plurality 48,112; 1888, Dem plurality 52,085.

TENNESSEE—1824, Dem majority 19,669; 1828, Dem majority 41,850; 1832, Dem majority 27,304; 1836, Whig (Rep) majority 9,842; 1840, Whig (Rep) majority 12,102; 1844, Whig (Rep) majority 113; 1848, Whig (Rep) majority 6,286; 1852, Whig (Rep) majority 1,880; 1856, Dem majority 7,460; 1860, Constitutionnal Union plurality 4,565; 1868, Rep majority 30,499; 1882, Dem majority 8,736; 1876, Dem majority 43,600; 1880, Dem majority 24,598; 1884, Dem plurality 8,275; 1888, Dem plurality 18,798.

TEXAS—1848, Dem majority 6,150; 1852, Dem majority 8,557; 1856, Dem majority 15,530; 1860, Dem majority 32,110; 1872, Dem majority 16,595; 1876, Dem majority 59,955; 1880, Dem majority 70,878; 1884, Dem plur. 132,168; 1888, Dem plur. 146,603.

VERMONT—1828, Loose Constructionist (Rep) majority 16,579;
 1832, Loose Constructionist (Rep) majority 3,282; 1836, Whig
 (Rep) majority 6,954; 1840, Whig (Rep) majority 14,117; 1844,
 Whig (Rep) majority 4,775; 1848, Whig (Rep) plurality 9,285; 1852,
 Whig (Rep) majority 508; 1856, Rep majority 28,447; 1860, Rep
 majority 24,772; 1864, Rep majority 29,098; 1868, Rep majority
 32,122; 1872, Rep. maj. 29,961; 1876, Rep maj. 23,838; 1880,
 Rep maj. 26,036; 1884, Rep plur. 22,183; 1888, Rep plur. 28,404.

VIRGINIA—1824, Dem majority 2,023; 1828, Dem majority
 14,651; 1832, Dem majority 22,158; 1836, Dem majority 6,893;
 1840, Dem majority 1,392; 1844, Dem majority 5,893; 1848, Dem
 majority 1,453; 1852, Dem majority 15,286; 1856, Dem majority
 29,105; 1860, Constitutional Union plurality 358; 1872, Rep majori-
 ty 1,772; 1876, Dem majority 44,112; 1880, Regular Dem ma-
 jority 12,810; Dem plur. 6,315; 1888, Dem plur. 1,539.

WEST VIRGINIA—1864, Rep majority 12,714; 1868, Rep ma-
 jority 8,869; 1872, Rep majority 2,264; 1876, Dem majority 12,384;
 1880, Dem maj. 2,069; 1884, Dem plur. 4,221; 1888, Dem plur. 839.

WISCONSIN—1848, Dem plurality 1,254; 1852, Dem majority
 2,604; 1856, Rep majority 12,668; 1860, Rep majority 20,040; 1864,
 Rep majority 17,574; 1868, Rep majority 24,150; 1872, Rep ma-
 jority 17,686; 1876, Rep majority 5,205; 1880, Rep majority 21,783;
 1884, Rep plur. 14,693; 1888, Rep plur. 21,271.

POPULAR VOTE.

For Presidential candidates from 1824 to and including 1885.
 Prior to 1824 electors were chosen by the legislatures of the differ-
 ent states.

1824, J. Q. ADAMS—Had 105,321 to 155,872 for Jackson,
 44,282 for Crawford, and 46,587 for Clay. Jackson over Adams,
 50,551. Adams less than combined vote of others, 140,869. Of the
 whole vote Adams had 29.92 per cent., Jackson 44.27. Clay 13.23,
 Crawford 13.23. Adams elected by House of Representatives.

1828, JACKSON—Had 647,231 to 509,097 for Adams. Jackson's
 majority, 138,134. Of the whole vote Jackson had 55.97 per cent.,
 Adams 44.03.

1832, JACKSON—Had 687,502 to 530,189 for Clay, and 33,108
 for Floyd and Wirt combined. Jackson's majority, 124,205. Of
 the whole vote Jackson had 54.96 per cent., Clay 42.39, and the
 others combined 2.65.

1836, VAN BUREN—Had 761,549 to 736,656, the combined vote
 for Harrison, White, Webster and Maguin. Van Buren's majority,
 24,893. Of the whole vote Van Buren had 50.83 per cent., and the
 others combined 49.17.

1840, HARRISON—Had 1,275,017 to 1,128,702 for Van Buren,
 and 7,059 for Birney. Harrison's majority, 139,256. Of the
 whole vote Harrison had 52.89 per cent., Van Buren 46.82, and
 Birney .29.

1844, POLK—Had 1,337,243 to 1,299,068 for Clay, and 62,300 for Birney. Polk over Clay, 38,175. Polk less than others combined, 24,125. Of the whole vote Polk had 49.55 per cent., Clay 48.14, and Birney 2.21.

1848, TAYLOR—Had 1,360,101 to 1,220,544 for Cass, and 291,263 for Van Buren. Taylor over Cass, 139,557. Taylor less than others combined, 151,706. Of the whole vote Taylor had 47.36 per cent., Cass 42.50, and Van Buren 10.14.

1852, PIERCE—Had 1,601,474 to 1,386,578 for Scott, and 156,144 for Hale. Pierce over all, 58,747. Of the whole vote Pierce had 50.90 per cent., Scott 44.10, and Hale 4.97.

1856, BUCHANAN—Had 1,838,169 to 1,341,264 for Fremont, and 874,534 for Fillmore. Buchanan over Fremont 496,905. Buchanan less than combined vote of others, 377,629. Of the whole vote Buchanan had 45.34 per cent., Fremont 33.09, and Fillmore 21.57.

1860, LINCOLN—Had 1,866,352 to 1,375,157 for Douglas, 845,713 for Breckinridge, and 589,581 for Bell. Lincoln over Breckinridge, 491,195. Lincoln less than Douglas and Breckinridge combined, 354,568. Lincoln less than combined vote of all others, 944,149. Of the whole vote Lincoln had 39.91 per cent., Douglas 29.40, Breckinridge 18.08, and Bell 12.61.

1864, LINCOLN—Had 2,216,067 to 1,808,725 for McClellan. (Eleven states not voting, viz.: Alabama, Arkansas, Florida, Georgia, Louisiana, Mississippi, North Carolina, South Carolina, Tennessee, Texas and Virginia.) Lincoln's majority, 408,342. Of the whole vote Lincoln had 55.06 per cent., and McClellan 44.94.

1868, GRANT—Had 3,015,071 to 2,709,613 for Seymour. (Three states not voting, viz.: Mississippi, Texas and Virginia.) Grant's majority, 305,458. Of the whole vote Grant had 52.67 per cent., and McClellan 47.33.

1872, GRANT—Had 3,597,070 to 2,834,070 for Greeley, 29,408 for O'Connor, and 5,608 for Black. Grant's majority, 729,975. Of the whole vote Grant had 55.63 per cent., Greeley 43.83, O'Connor .15, Black .09.

1876, HAYES—Had 4,033,950 to 4,284,885 for Tilden, 81,740 for Cooper, 9,522 for Smith, and 2,636 scattering. Tilden's majority over Hayes, 250,935. Tilden's majority of the entire vote cast, 157,037. Hayes less than the combined vote of others, 344,833. Of the whole vote cast Hayes had 47.95 per cent., Tilden 50.94 per cent., Cooper .97 per cent., Smith .11 per cent., scattering .03.

1880, GARFIELD—Had 4,449,053 to 4,442,035 for Hancock, 307,306 for Weaver, and 12,576 scattering. Garfield over Hancock, 7,018. Garfield less than the combined vote for others, 313,864. Of the popular vote Garfield had 48.26 per cent., Hancock 48.25, Weaver 3.33, scattering .13.

1884, CLEVELAND—Had 4,913,248 to 4,848,170 for Blaine, 151,062 for St. John, 133,728 for Butler. Cleveland over Blaine, 65,098. Cleveland less than entire vote of opponents, 219,712.

1888.—Harrison had 5,430,607 to 5,538,045 for Cleveland, 257,243 to Fisk, and 114,623 to the Labor issue. Cleveland over Harrison, 107,438. Harrison less than entire vote of opponents, 479,304.

SUMMARY—Of the Presidents, Adams, Federalist; Polk, Democrat; Taylor, Whig; Buchanan, Democrat; Lincoln, Republican; Garfield, Republican, and Cleveland, Democrat, did not, when elected, receive a majority of the popular vote. The highest percentage of popular vote received by any President was 55.97 for Jackson, Democrat, in 1828, and the lowest 39.91 for Lincoln, Republican, in 1860; Hayes, Republican, next lowest, with 47.95. Hayes, with the exception of John Quincy Adams, who was chosen by House of Representatives, was the only President ever elected who did not have a majority over his principal competitor, and Tilden the only defeated candidate who had a majority over the President-elect, and a majority of all the votes cast.

WHAT A HORSE CAN DRAW—On metal rails a horse can draw:

One and two-thirds times as much as on asphalt pavement.

Three and one-third times as much as on good Belgian blocks.

Five times as much as on ordinary Belgian blocks.

Seven times as much as on good cobble-stone.

Thirteen times as much as on ordinary cobble-stone.

Twenty times as much as on an earth road.

Forty times as much as on sand.

A modern compilation of engineering maxims states that a horse can drag, as compared with what he can carry on his back, in the following proportions: On the worst earthen road, three times more; on a good macadamized road, nine; on plank, twenty-five; on a stone trackway, thirty-three, and on a good railway, fifty-four times as much.

EXCESSIVE HEAT IN THE PAST.—In 1303 and 1304 the Rhine, Loire, and Seine ran dry. The heat in several French provinces during the summer of 1705 was equal to that of a glass furnace. Meat could be cooked by merely exposing it to the sun. Not a soul dare venture out between noon and 4 p. m. In 1718 many shops had to close. The theaters never opened their doors for three months. Not a drop of water fell during six months. In 1773 the thermometer rose to 118 degrees. In 1778 the heat of Bologna was so great that a great number of people were stifled. There was not sufficient air for the breath, and people had to take refuge under the ground. In July, 1793, the heat again became intolerable. Vegetables were burned up, and fruit dried on the trees. The furniture and wood-work in dwelling-houses cracked and split up; meat went bad in an hour.

LIST OF APPROPRIATIONS BY CONGRESS, 1879-1892.

The following have been the annual appropriations made by the United States Congress for the expenses of the Government for each fiscal year ending June 30, from 1879 to 1892, inclusive.

| | 1879. | 1880. | 1881. | 1882. | 1883. | 1884. | 1885. |
|-----------------------------------|--------------|--------------|--------------|--------------|--------------|--------------|--------------|
| Deficiencies..... | \$15,213,259 | \$ 4,633,824 | \$ 6,118,085 | \$ 5,110,862 | \$ 9,853,869 | \$ 2,832,680 | \$ 4,385,836 |
| Legislative, Executive & Judicial | 15,868,694 | 16,136,230 | 16,532,009 | 17,797,398 | 29,322,908 | 20,763,843 | 21,556,902 |
| Sundry Civil..... | 24,968,590 | 19,724,869 | 22,503,508 | 22,011,223 | 25,425,479 | 23,713,404 | 22,246,750 |
| Support of the Army..... | 51,279,679 | 26,797,300 | 26,425,800 | 26,687,800 | 27,032,099 | 24,681,250 | 24,454,450 |
| Naval Service.... | 14,153,432 | 14,028,469 | 14,405,798 | 14,566,038 | 14,903,559 | 15,954,247 | 8,931,856 |
| Indian Service... | 4,734,876 | 4,713,479 | 4,657,263 | 4,587,869 | 5,219,604 | 5,388,656 | 5,933,151 |
| Rivers & Harbors | 8,322,700 | 9,577,495 | 8,976,500 | 11,451,300 | 18,988,875 | None. | 14,940,300 |
| Forts and Fortifications..... | 275,000 | 275,000 | 550,000 | 575,000 | 375,000 | 670,000 | 700,000 |
| Military Academy | 292,804 | 319,547 | 316,234 | 322,435 | 335,557 | 318,657 | 314,563 |
| Post Office Dept. | 4,222,275 | 5,872,376 | 3,883,420 | 1,152,258 | 1,902,178 | Indefinite. | Indefinite. |
| Pensions..... | 29,371,574 | 56,233,200 | 41,644,000 | 68,282,307 | 116,000,000 | 86,575,000 | 20,810,000 |
| Consular and Diplomatic.... | 1,087,535 | 1,097,735 | 1,180,335 | 1,191,435 | 1,256,655 | 1,296,255 | 1,225,140 |
| Agricult'l D't.*. | ..... | ..... | 253,300 | 335,500 | 427,280 | 405,640 | 480,190 |
| Dis. of Col'mbiat | ..... | ..... | 3,425,247 | 3,379,571 | 3,496,050 | 3,505,495 | 3,594,256 |
| Miscellaneous.... | 2,226,390 | 2,995,124 | 4,959,332 | 1,128,006 | 5,888,994 | 1,806,439 | 7,800,004 |
| Totals..... | 172,016,809 | 162,404,648 | 155,830,841 | 179,579,000 | 251,428,117 | 187,911,566 | 137,451,398 |

LIST OF APPROPRIATIONS BY CONGRESS.—CONTINUED.

| | 1886. | 1887. | 1888. | 1889. | 1890. | 1891. | 1892. |
|-----------------------------------|--------------|--------------|-------------|--------------|--------------|--------------|--------------|
| Deficiencies..... | \$ 3,332,717 | \$13,572,882 | \$ 137,000 | \$21,190,996 | \$14,239,180 | \$34,137,737 | \$38,516,227 |
| Legislative, Executive & Judicial | 21,495,661 | 20,809,781 | 20,772,720 | 20,924,492 | 20,865,220 | 21,073,137 | 22,027,674 |
| Sundry Civil | 25,961,904 | 22,650,658 | 22,369,840 | 26,316,530 | 25,537,642 | 29,760,054 | 35,459,153 |
| Support of the Army..... | 24,014,052 | 23,753,057 | 23,724,718 | 24,474,711 | 24,316,616 | 24,206,471 | 24,613,529 |
| Naval Service.... | 21,280,767 | 16,489,556 | 25,786,847 | 19,938,281 | 21,675,375 | 23,136,035 | 31,541,645 |
| Indian Service.... | 5,773,329 | 5,561,262 | 5,234,397 | 5,401,331 | 8,077,453 | 7,256,758 | 16,278,192 |
| Rivers & Harbors | None. | 14,464,900 | None. | 22,397,616 | None. | 25,136,295 | 2,951,200 |
| Forts and Fortifications..... | 735,000 | 59,876 | None. | 3,972,000 | 1,235,594 | 4,232,935 | 3,774,803 |
| Milit'ry Academy | 309,902 | 297,805 | 419,936 | 315,044 | 302,767 | 435,296 | 402,070 |
| Post Office Dept. | Indefinite. | Indefinite. | Indefinite. | Indefinite. | Indefinite. | Indefinite. | Indefinite. |
| Pensions..... | 60,000,000 | 76,075,200 | 83,152,500 | 81,758,700 | 81,758,700 | 98,457,461 | 135,214,785 |
| Consular and Diplomatic..... | 1,242,925 | 1,364,065 | 1,429,942 | 1,428,465 | 1,980,025 | 1,710,725 | 1,656,925 |
| Agricult'l D'pt.* | 580,700 | 654,715 | 1,028,730 | 1,715,826 | 1,669,770 | 1,796,502 | 3,028,153 |
| Dis. of Col'mbia† | 3,622,683 | 3,721,050 | 4,284,590 | 5,056,679 | 5,662,410 | 5,762,236 | 5,597,125 |
| Miscellaneous.... | 2,268,383 | 10,184,570 | 4,694,635 | 10,129,502 | 10,136,689 | 10,620,840 | 2,721,283 |
| Totals..... | 170,608,114 | 209,659,382 | 193,035,861 | 245,020,173 | 218,115,440 | 287,722,488 | 323,783,079 |

* Previous to 1881 appropriations for the agricultural department were included in the legislative, executive and judicial appropriations.

† Previous to 1881 appropriations for the District of Columbia were included in the sundry civil expenses appropriations.

Rate of Annual Income on Investments, PAR VALUE BEING \$100, BEARING INTEREST AT

| Price Paid. | Five Per cent. | Six Per cent. | Seven Per cent. | Eight Per cent. | Ten Per cent. |
|-------------|-------------------|------------------|--------------------|--------------------|------------------|
| \$50 | 10.00 | 12.00 | 14.00 | 16.00 | 20.00 |
| 55 | 9.09 | 10.90 | 12.72 | 14.55 | 18.18 |
| 60 | 8.33 | 10.00 | 11.66 | 13.33 | 16.60 |
| 65 | 7.69 | 9.23 | 10.76 | 12.30 | 15.38 |
| 70 | 7.14 | 8.57 | 10.00 | 11.42 | 14.28 |
| 75 | 6.66 | 8.00 | 9.33 | 10.66 | 13.35 |
| 80 | 6.25 | 7.50 | 8.75 | 10.00 | 12.50 |
| 82½ | 6.06 | 7.27 | 8.48 | 9.69 | 11.12 |
| 85 | 5.88 | 7.05 | 8.23 | 9.41 | 11.76 |
| 87½ | 5.71 | 6.85 | 8.00 | 9.14 | 11.42 |
| 90 | 5.55 | 6.66 | 7.77 | 8.88 | 11.11 |
| 92½ | 5.40 | 6.48 | 7.56 | 8.64 | 10.80 |
| 95 | 5.26 | 6.31 | 7.36 | 8.42 | 10.50 |
| 96 | 5.20 | 6.25 | 7.29 | 8.33 | 10.41 |
| 97 | 5.15 | 6.18 | 7.21 | 8.24 | 10.30 |
| 97½ | 5.12 | 6.15 | 7.17 | 8.20 | 10.25 |
| 98 | 5.10 | 6.12 | 7.14 | 8.16 | 10.20 |
| 99 | 5.05 | 6.06 | 7.07 | 8.08 | 10.10 |
| 100 | 5.00 | 6.00 | 7.00 | 8.00 | 10.00 |
| 101 | 4.95 | 5.94 | 6.93 | 7.92 | 9.90 |
| 102 | 4.90 | 5.88 | 6.86 | 7.84 | 9.80 |
| 103 | 4.85 | 5.82 | 6.79 | 7.76 | 9.70 |
| 104 | 4.80 | 5.76 | 6.73 | 7.69 | 9.60 |
| 105 | 4.76 | 5.71 | 6.66 | 7.61 | 9.50 |
| 110 | 4.54 | 5.45 | 6.36 | 7.27 | 9.09 |
| 115 | 4.34 | 5.21 | 6.08 | 6.95 | 8.69 |
| 120 | 4.16 | 5.00 | 5.83 | 6.66 | 8.33 |
| 125 | 4.00 | 4.90 | 5.60 | 6.40 | 8.00 |
| 130 | 3.84 | 4.61 | 5.38 | 6.15 | 7.69 |
| 135 | 3.70 | 4.44 | 5.18 | 5.92 | 7.40 |
| 140 | 3.57 | 4.28 | 5.00 | 5.71 | 7.14 |
| 145 | 3.44 | 4.13 | 4.82 | 5.51 | 6.89 |
| 150 | 3.33 | 4.00 | 4.66 | 5.33 | 6.66 |
| 160 | 3.20 | 3.75 | 4.40 | 5.00 | 6.40 |

Greatest Tunnels in the World.

Mount St. Gothard, 49,170 feet long (the longest in the world);
 Mount Cenis, 40,620 feet long; Hoosac, 23,700 feet long; Thames,
 1,680 feet long; Harecastle, 8,778 feet long; Kilsby, 6,210 feet long;
 Baltimore, 32,400 feet long.

1. **PLAYING-CARDS.** — In 1882 there were manufactured, in
 Germany alone, 4,500,000 packs of playing-cards.

NATURALIZATION LAWS OF THE UNITED STATES.

The conditions under and the manner in which an alien may be admitted to become a citizen of the United States are prescribed by Sections 2165-74 of the Revised Statutes of the United States.

DECLARATION OF INTENTION.

The alien must declare upon oath, before a circuit or district court of the United States, or a district or supreme court of the Territories, or a court of record of any of the States having common law jurisdiction, and a seal and clerk, two years at least prior to his admission, that it is, *bona fide*, his intention to become a citizen of the United States, and to renounce forever all allegiance and fidelity to any foreign prince or State, and particularly to the one of which he may be at the time a citizen or subject.

OATH ON APPLICATION FOR ADMISSION.

He must, at the time of his application to be admitted, declare on oath, before some one of the courts above specified, "that he will support the Constitution of the United States, and that he absolutely and entirely renounces and abjures all allegiance and fidelity to every foreign prince, potentate, State or sovereignty, and particularly, by name, to the prince, potentate, State or sovereignty of which he was before a citizen or subject," which proceedings must be recorded by the clerk of the court.

CONDITIONS FOR CITIZENSHIP.

If it shall appear to the satisfaction of the court to which the alien has applied that he has resided continuously within the United States for at least five years, and within the State or Territory where such court is at the time held one year at least; and that during that time "he has behaved as a man of good moral character, attached to the principles of the Constitution of the United States, and well disposed to the good order and happiness of the same," he will be admitted to citizenship.

TITLES OF NOBILITY.

If the applicant has borne any hereditary title or order

of nobility, he must make an express renunciation of the same at the time of his application.

SOLDIERS.

Any alien of the age of twenty-one years and upward, who has been in the armies of the United States and has been honorably discharged therefrom, may become a citizen on his petition, without any previous declaration of intention, provided that he has resided in the United States at least one year previous to his application, and is of good moral character.

MINORS.

Any alien under the age of twenty-one years who has resided in the United States three years next preceding his arriving at that age, and who has continued to reside therein to the time he may make application to be admitted a citizen thereof, may, after he arrives at the age of twenty-one years, and after he has resided five years within the United States, including the three years of his minority, be admitted a citizen; but he must make a declaration on oath and prove to the satisfaction of the court that for two years next preceding it has been his *bona-fide* intention to become a citizen.

CHILDREN OF NATURALIZED CITIZENS.

The children of persons who have been duly naturalized, being under the age of twenty-one years at the time of the naturalization of their parents, shall, if dwelling in the United States, be considered as citizens thereof.

CITIZENS' CHILDREN WHO ARE BORN ABROAD.

The children of persons who now are or have been citizens of the United States are, though born out of the limits and jurisdiction of the United States, considered as citizens thereof.

PROTECTION ABROAD TO NATURALIZED CITIZENS.

Section 2000 of the Revised Statutes of the United States declares that "all naturalized citizens of the United States while in foreign countries are entitled to and shall receive from this Government the same protection of persons and property which is accorded to native-born citizens."

PRINCIPAL OF THE PUBLIC DEBT.

Statement of Outstanding Principal of the Public Debt of the United States on January 1 of each year from 1791 to 1842, inclusive, and on July 1 of each year from 1843 to 1886, inclusive, and on December 1 of each year from 1887 to 1891, inclusive.

| JAN. 1. | JAN. 1. | JAN. 1. | JULY 1. | JULY 1. | | | | |
|------------|----------------|---------|------------------|-----------|------------------|---------|------------------|------------------|
| 11791.. \$ | 75,463,476.52 | 1817.. | \$123,491,965.16 | 1843.. \$ | 32,742,922.00 | JULY 1. | 1869.. \$ | 2,588,452,213.94 |
| 11792.. | 77,217,924.66 | 1818.. | 103,466,633.83 | 1844.. | 23,461,652.50 | 1870.. | 2,480,672,427.81 | |
| 11793.. | 80,352,634.04 | 1819.. | 95,529,648.28 | 1845.. | 15,925,303.01 | 1871.. | 2,353,211,332.32 | |
| 11794.. | 78,327,404.77 | 1820.. | 91,015,566.15 | 1846.. | 15,550,202.97 | 1872.. | 2,253,251,328.78 | |
| 11795.. | 80,747,587.39 | 1821.. | 89,987,427.66 | 1847.. | 38,826,534.77 | 1873.. | 2,234,482,993.20 | |
| 11796.. | 83,762,172.07 | 1822.. | 93,546,676.98 | 1848.. | 47,044,862.23 | 1874.. | 2,251,690,468.43 | |
| 11797.. | 82,064,479.33 | 1823.. | 90,875,877.28 | 1849.. | 63,061,858.69 | 1875.. | 2,232,284,531.95 | |
| 11798.. | 79,228,529.12 | 1824.. | 90,269,777.77 | 1850.. | 63,452,773.55 | 1876.. | 2,180,395,067.15 | |
| 11799.. | 78,408,669.77 | 1825.. | 83,788,432.71 | 1851.. | 68,304,796.02 | 1877.. | 2,205,301,392.10 | |
| 11800.. | 82,976,294.35 | 1826.. | 81,054,059.99 | 1852.. | 66,199,341.71 | 1878.. | 2,256,203,892.53 | |
| 11801.. | 83,038,050.80 | 1827.. | 73,987,357.20 | 1853.. | 59,803,117.70 | 1879.. | 2,245,495,072.04 | |
| 11802.. | 86,712,632.25 | 1828.. | 67,475,043.87 | 1854.. | 42,242,222.42 | 1880.. | 2,120,415,370.63 | |
| 11803.. | 77,054,686.30 | 1829.. | 58,421,413.67 | 1855.. | 35,586,858.56 | 1881.. | 2,069,013,569.58 | |
| 11804.. | 86,427,120.88 | 1830.. | 48,565,406.50 | 1856.. | 31,972,537.90 | 1882.. | 1,918,312,994.03 | |
| 11805.. | 82,312,150.50 | 1831.. | 39,123,191.68 | 1857.. | 28,699,831.85 | 1883.. | 1,884,171,728.07 | |
| 11806.. | 75,723,270.66 | 1832.. | 24,322,235.18 | 1858.. | 44,911,881.03 | 1884.. | 1,830,528,923.57 | |
| 11807.. | 69,218,398.64 | 1833.. | 7,001,698.83 | 1859.. | 58,496,837.88 | 1885.. | 1,876,424,275.14 | |
| 11808.. | 65,196,317.97 | 1834.. | 4,769,082.08 | 1860.. | 64,842,287.88 | 1886.. | 1,756,445,205.78 | |
| 11809.. | 57,023,192.09 | 1835.. | 37,513.05 | 1861.. | 90,580,873.72 | DEC. 1. | | |
| 11810.. | 53,173,217.52 | 1836.. | 336,957.83 | 1862.. | 524,176,412.13 | 1887.. | 1,664,461,536.38 | |
| 11811.. | 48,005,587.76 | 1837.. | 3,308,124.07 | 1863.. | 1,119,772,138.63 | 1888.. | 1,680,917,706.23 | |
| 11812.. | 45,209,737.90 | 1838.. | 10,434,221.14 | 1864.. | 1,815,784,370.57 | 1889.. | 1,617,372,419.53 | |
| 11813.. | 55,962,827.57 | 1839.. | 3,573,343.82 | 1865.. | 2,680,647,869.74 | 1890.. | 1,549,296,126.48 | |
| 11814.. | 81,487,846.24 | 1840.. | 5,250,875.54 | 1866.. | 2,773,236,173.69 | 1891.. | 1,546,961,695.61 | |
| 11815.. | 99,833,660.15 | 1841.. | 13,594,480.73 | 1867.. | 2,678,126,103.87 | | | |
| 11816.. | 127,834,933.74 | 1842.. | 20,601,226.28 | 1868.. | 2,511,687,851.19 | | | |

How the price of Southern Confederate Money Dropped.

When the first issue of the Confederate money was scattered among the people, it commanded a slight premium. It then scaled down as follows: June, 1861, 90c.; December 1, 1861, 80c.; December 15, 1861, 75c.; February 1, 1862, 60c.; February 1, 1863, 20c.; June, 1863, 8c.; January, 1864, 2c.; November, 1864, 4½c.; January, 1865, 2½c.; April 1, 1865, 1½c. After that date, it took from \$800 to \$1,000 in Confederate money to buy a one-dollar greenback.

Length of Navigation of the Mississippi River.

The length of navigation of the Mississippi river itself for ordinary large steamboats is about 2,161 miles, but small steamers can ascend about 650 miles further. The following are its principal navigable tributaries, with the miles open to navigation.

| | <i>Miles.</i> | | <i>Miles.</i> |
|-------------------|---------------|------------------|---------------|
| Minnesota..... | 295 | Wisconsin..... | 160 |
| Chippewa..... | 90 | Rock..... | 64 |
| Iowa..... | 80 | Illinois..... | 350 |
| Missouri..... | 2,900 | Yellowstone..... | 474 |
| Big Horn..... | 50 | Ohio..... | 950 |
| Allegheny..... | 325 | Monongahela..... | 110 |
| Muskingum..... | 94 | Kenawha..... | 94 |
| Kentucky..... | 105 | Green..... | 200 |
| Wabash..... | 365 | Cumberland..... | 600 |
| Tennessee..... | 270 | Clinch..... | 50 |
| Osage..... | 302 | St. Francis..... | 180 |
| White..... | 779 | Black..... | 14 |
| Little White..... | 48 | Arkansas..... | 88 |
| Big Hatchie..... | 75 | Issaquena..... | 16 |
| Sunflower..... | 271 | Yazoo..... | 22 |
| Tallahatchie..... | 175 | Big Black..... | 3 |
| Red..... | 986 | Cane..... | 5 |
| Cypress..... | 44 | Ouachita..... | 38 |
| Black..... | 61 | Bœuf..... | 5 |
| Bartholomew..... | 100 | Tensas..... | 11 |
| Macon..... | 60 | Teche..... | 9 |
| Atchafalya..... | 218 | D'Arbonne..... | 50 |
| Lafourche..... | 168 | | |

The other navigable tributaries have less than fifty miles each of navigation. The total miles of navigation of these fifty-five streams is about 16,500 miles, or about two-thirds the distance around the world. The Mississippi and its tributaries may be estimated to possess 15,550 miles navigable to steamboats, and 20,221 miles navigable to barges.

ARMY OF THE UNITED STATES.

HEADQUARTERS, WASHINGTON, D. C.

MAJ. GEN. JOHN M. SCHOFIELD, COMMANDING.

Department of the East.

Headquarters, Governor's Island, New York Harbor.

Maj. Gen. OLIVER O. HOWARD, Commanding.

GEOGRAPHICAL LIMITS.—The New England States, States of New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, West Virginia, North Carolina, South Carolina, Georgia, Florida, Louisiana, Mississippi, Alabama, Kentucky, Tennessee, Ohio and the District of Columbia.

POSTS AND TROOPS STATIONED THERE.

ADAMS, FORT, R. I.—Hdqrs., C, G and M, 2d, and B, 4th Art.
 BARRANQUAS, FORT, Fla.—D, 4th Art.
 COLUMBUS, FORT, N. Y.—B, H and M, 1st Art.
 HAMILTON, FORT, N. Y.—Hdqrs., H, G, I and K, 1st Art.
 JACKSON BARRACKS, La.—B and H, 5th Inf.
 MADISON BARRACKS, N. Y.—Hdqrs., B, C, D, E, F and G, 9th Inf.
 MCHENRY, FORT, Md.—D, G and I, 3d Art.
 MCPHERSON, FORT, Ga.—Hdqrs., A, C, E, G, I, K, L and M, 4th Art.
 MONROE, FORT, Va.—F, 1st; I, 2d; B and M, 3d; H, 4th, and G, 5th Art.
 MOUNT VERNON BARRACKS, Ala.—C and G, 5th, and I, 12th Inf.
 MYER, FORT, Va.—A, 1st; F, 7th; H, 8th, and K, 9th Cav.
 NEWPORT BARRACKS, Ky., E, 6th Inf.
 NIAGARA, FORT, N. Y.—Hdqrs. and A, C and E, 21st Inf.
 ONTARIO, FORT, N. Y.—A, 9th Inf.
 PLATTSBURGH BARRACKS, N. Y.—H, 9th Inf.
 PORTER, FORT, N. Y.—B and H, 21st Inf.
 PREBLE, FORT, Me.—E, 2d Art.
 ST. FRANCIS BARRACKS, Fla.—Hdqrs., D and E, 5th Inf.
 SCHUYLER, FORT, N. Y.—H and L, 2d Art.
 THOMAS, FORT, Ky.—Hdqrs., B, C, D, F, G and H, 6th Inf.
 TRUMBULL, FORT, Conn.—K, 2d Art.
 WADSWORTH, FORT, N. Y.—C, D and L, 1st Art.
 WARREN, FORT, Mass.—B and D, 2d Art.
 WASHINGTON BARRACKS, D. C.—Hdqrs., A, C, E, H, K and L, 3d Art.,
 WEST POINT, N. Y.—E, Engineer, Btl., and detachment.
 WILLETS POINT, N. Y.—Hdqrs., A, B, C and D, Engr. Btl.
 WOOD, FORT, N. Y.—A, 6th Inf.

Department of the Missouri.

Maj. Gen. NELSON A. MILES, Commanding.—Hdqrs., Chicago, Ill.

GEOGRAPHICAL LIMITS.—State of Michigan, Wisconsin, Indiana, Illinois, Missouri, Kansas and Arkansas, Indian and Oklahoma Territories.

POSTS AND TROOPS STATIONED THERE.

BRADY, FORT, Mich.—B and F, 19th Inf.
 LEAVENWORTH, FORT, Kan.—F, 2d; I, 5th; C, 9th, and I, 10th Cav.;
 Hdqrs., E and G, 12th; A, 5th; H, 7th; A and F, 10th; F,
 13th, and H, 14th Inf.
 MACKINAC, FORT, Mich.—C and D, 19th Inf.
 OKLAHOMA, Okla.—G, 10th Inf.
 RENO, FORT, Okla.—Hdqrs., B, C, E, G, K and L, 5th Cav., and G,
 13th Inf.
 RILEY, FORT, Kan.—Hdqrs., A, B, C, D, E, G, I and K, 7th Cav.; A
 and F, 2nd; F, 4th Art.
 SHERIDAN, FORT, Ill.—E, 1st Art.; the whole of the 15th Inf.
 SUPPLY, FORT, Ind.—A and F, 5th Cav.; Hdqrs., B, E, H and I, 13th
 Inf.
 WAYNE, FORT, Ind.—Hdqrs., A, E, G and H, 19th Inf.

Department of Arizona.

Brig. Gen. ALEX. McD. McCook, Comdg.—Hdqrs., Los Angeles, Cal.
 GEOGRAPHICAL LIMITS.—Territories of Arizona and New Mexico, and
 that portion of California south of the 35th parallel.

POSTS AND TROOPS STATIONED THERE.

APACHE, FORT, Ariz.—D, 1st Cav., and B, E, F and H, 11th Inf.
 BAYARD, FORT, N. Mex.—B and I, 1st Cav.; Hdqrs., D, E, F and G,
 24th Inf.
 BOWIE, FORT, Ariz.—E, 2d Cav., and C, 24th Inf.
 GRANT, FORT, Ariz.—Hdqrs., C, E, F, G, H and K, 1st Cav.
 HUACHUCA, FORT, Ariz.—B and I, 2d Cav.; I, 11th Inf., and A, B
 and H, 24th Inf.
 MARCY, FORT, N. Mex.—Hdqrs. and B and D, 10th Inf.
 SAN CARLOS, Ariz.—K, 2d Cav.
 SAN DIEGO BARRACKS, Cal.—C, 10th Inf.
 STANTON, FORT, N. Mex.—G, 2d Cav.; E, 10th Inf.
 WHIPPLE BARRACKS, Ariz.—Hdqrs., A, C, D and G, 11th Inf.
 WINGATE, FORT, N. Mex.—Hdqrs., C, D, H and L, 2nd Cav.; H and I,
 10th Inf.

Department of California.

Brig. Gen. THOMAS H. RUGER, Comdg.—Hdqrs., San Francisco, Cal.
 GEOGRAPHICAL LIMITS.—States of California (excepting that portion
 south of the 35th parallel) and Nevada.

POSTS AND TROOPS STATIONED THERE.

ALCATRAZ ISLAND, Cal.—E and I, 5th Art.
 ANGEL ISLAND, Cal.—Hdqrs., A, B, D, G and H, 1st Inf.
 BENICIA BARRACKS, Cal.—C, E and F, 1st Inf.
 BIDWELL FORT, Cal.—C, 4th Cav., and I, 1st Inf.
 MASON, FORT, Cal.—M, 5th Art.
 PRESIDIO, SAN FRANCISCO, Cal.—B, 4th Cav.; Hdqrs., B, D, F, H, K
 and L, 5th Art.
 SEQUOIA NATIONAL PARK, Cal.—K, 4th Cav.
 YOSEMITE NATIONAL PARK, Cal.—I, 4th Cav.

Department of the Columbia.

Brig. Gen. AUG. V. KAUTZ, Cmdg.—Hdqrs., Vancouver Barracks, Wash.

GEOGRAPHICAL LIMITS.—States Of Oregon, Washington and Idaho, and Alaska Territory, excepting so much of Idaho as is embraced in the Department of the Platte.

POSTS AND TROOPS STATIONED THERE.

BOISE BARRACKS, Idaho.—F, 4th Cav.; C, 4th Inf.

CANBY, FORT, Wash.—A and C, 5th Art.

SHERMAN, FORT, Idaho.—G, 4th Cav.; Hdqrs., A, D, F and H, 4th Inf.

SPOKANE, FORT, Wash.—B, E, G and I, 4th Inf.

TOWNSEND, FORT, Wash.—A and I, 14th Inf.

VANCOUVER BARRACKS, Wash.—E, 4th Cav.; Hdqrs., B, C, D, E, F and G, 14th Inf.

WALLA WALLA, FORT.—Hdqrs., A, D, H and L, 4th Cav.

Department of Dakota.

Brig. Gen. WESLEY MERRITT, Comdg.—Hdqrs., St. Paul, Minn.

GEOGRAPHICAL LIMITS.—State of Minnesota, South Dakota (excepting so much as lies south of the 44th parallel), North Dakota and Montana, and the Post of Camp Sheridan, Wyo.

POSTS AND TROOPS STATIONED THERE.

ASSINNIBOINE, FORT, Mont.—C and F, 10th Cav.; Hdqrs., A, B, D, E, F, G and H, 20th Inf.

BUFORD, FORT, N. D.—H, 10th Cav.; B, C and E, 25th Inf.

CUSTER, FORT, Mont.—L, 1st Cav.; Hdqrs., A, B, E, G and K, 10th Cav.; A and D, 25th Inf.

KEOGH, FORT, Mont.—L, 8th, and D, 10th Cav.; Hdqrs., A, B, C, D, F, G and H, 22d Inf.

MEADE, FORT, S. D.—L, 3d and Hdqrs., A, B, C, D, E, I and K, 8th Cav.

MISSOULA, FORT, Mont.—Hdqrs., F, G and H, 25th Inf.

PEMBINA, FORT, N. D.—E, 22d Inf.

POPLAR RIVER, CAMP, Mont.—C and I, 20th Inf.

SNELLING, FORT, Minn.—Hdqrs. A, B, C, D, E, F, G and H, 3d Inf.

SULLY, FORT, S. D.—I, 3d Inf.; B, C and D, 12th Inf.

YATES, FORT, N. D.—F and G, 8th Cav.; A, F and H, 12th, and I, 22d Inf.

YELLOWSTONE, FORT, Wyo.—D and I, 6th Cav.

Department of the Platte.

Brig. Gen. JOHN R. BROOKE, Comdg.—Hdqrs., Omaha, Neb.

GEOGRAPICAL LIMITS.—States of Iowa, Nebraska, Colorado and Wyoming (excepting the post of Camp Sheridan, Wyo.); Territory of Utah, so much of Idaho as lies east of a line formed by the extension of the western boundary of Utah to the north-eastern boundary of Idaho, and so much of South Dakota as lies south of the 44th parallel.

POSTS AND TROOPS STATIONED THERE.

DOUGLAS, FORT, Utah.—All of the 16th Inf.
 DUCHESNE, FORT, Utah.—B and H, 9th Cav.; D, 21st Inf.
 LOGAN, FORT, COLO.—Hdqrs., A, B, C, D, E, F and I, 7th Inf.
 MCKINNEY, FORT, WYO.—C and H, 6th Cav; Hdqrs., A, E and H, 8th Inf.
 NIOBRARA, FORT, NEB.—Hdqrs. and A, E, F, G, K and L, 6th Cav.; B and G, 8th Inf.
 OMAHA, FORT, NEB.—All of the 2d Inf.
 PILOT BUTTE, Camp at, Rock Springs, WYO.—G, 7th Inf.
 BANDALL, FORT, S. D.—F and I, 21st Inf.
 ROBINSON, FORT, NEB.—Hdqrs., A, D, E, F, G and I, 9th Cav.; C and D, 8th Inf.
 SIDNEY, FORT, NEB.—G, 21st Inf.
 WASHAKIE, FORT, WYO.—B, 6th Cav.; F and I, 8th Inf.

 Department of Texas.

Brig. Gen. DAVID S. STANLEY, Comdg.—Hdqrs., San Antonio, Tex.

GEOGRAPHICAL LIMITS.—State of Texas.

 POSTS AND TROOPS STATIONED THERE.

BLISS, FORT, Tex.—B and D, 23d Inf.
 BROWN, FORT, Tex.—B, 3d Cav.
 CLARK, FORT, Tex.—Hdqrs., A, B, C, D, G and H, 18th Inf.
 EAGLE PASS, Tex.—H, 3d Cav.
 HANCOCK, FORT, Tex.—F, 3d Cav.
 MCINTOSH, FORT, Tex.—Hdqrs., and A, C, E, G, I, K, L and M, 4th Art.
 PENA COLORADO, CAMP, Tex.—E, 3d Cav.
 RINGGOLD, FORT, Tex.—C and I, 3d Cav.; E, 18th Inf.
 SAM HOUSTON, Tex.—D and K, 3d Cav.; F, 3d Art.; F, 5th Inf.; Hdqrs. and A, C, E, F, G and H, 23d Inf.

 Armories, Arsenals, Depots and Soldiers' Homes.

 ARMORIES, ARSENALS AND ORDNANCE DEPOTS.

| | |
|-------------------------------------|--|
| Allegheny Arsenal, Pa. | New York Arsenal, N. Y. |
| Augusta Arsenal, Ga. | Omaha Ordnance Depot, Neb. |
| Benicia Arsenal, Cal. | Rock Island Arsenal, Ill. |
| Columbia Arsenal, Tenn. | St. Louis Powder Depot, Mo. |
| Fort Monroe Arsenal, Va. | San Antonio Arsenal, Tex. |
| Fort Snelling Ordnance Depot, Minn. | U. S. Powder Depot, N. J. |
| Frankford Arsenal, Pa. | Vancouver Barracks Ordnance Depot, Wash. |
| Indianapolis Arsenal, Ind. | Watertown Arsenal, Mass. |
| Kennebec Arsenal, Me. | Watervliet Arsenal, N. Y. |
| National Armory, Mass. | |

RECRUITING DEPOTS.

Columbus Barracks, Ohio; David's Island, N. Y.; Jefferson Barracks, Mo., and 44 Recruiting Rendezvous all over the country.

NATIONAL HOME FOR DISABLED VOLUNTEER SOLDIERS.

The National Home for Disabled Volunteer Soldiers comprises seven branches.

EASTERN BRANCH.—National Home, Togus, Me.

SOUTHERN BRANCH.—National Soldiers' Home, Elizabeth City County, Va.

CENTRAL BRANCH.—National Military Home, Montgomery County, Ohio.

NORTHWESTERN BRANCH.—National Home, Milwaukee County, Wis.

MARION BRANCH.—National Military Home, Grant County, Ind.

WESTERN BRANCH.—National Military Home, Leavenworth County, Kan.

PACIFIC BRANCH.—Soldiers' Home, Los Angeles County, Cal.
Agency in Washington, D. C.

STATE HOMES.

Vermont Soldiers' Home, Bennington, Vt.

National Soldiers' Home, Quincy, Mass.

Soldiers' Home in Massachusetts, Chelsea, Mass.

Fitch's Home for the Soldiers, and Soldiers' Hospital of Connecticut, Noroton Heights, Conn.

New York State Soldiers' and Sailors' Home, Bath, N. Y.

New Jersey Home for Disabled Soldiers, Kearny, N. J.

Pennsylvania Home for Disabled Volunteer Soldiers and Sailors, Erie, Pa.

Michigan Soldiers' Home, Grand Rapids, Mich.

Ohio Soldiers' and Sailors' Home, Sandusky, Ohio.

Illinois Soldiers' and Sailors' Home, Quincy, Ill.

Wisconsin Veterans' Home, Waupaca, Wis.

Minnesota State Soldiers' Home, Minnehaha, Minn.

Iowa Soldiers' Home, Marshalltown, Iowa.

Nebraska Soldiers' and Sailors' Home, Grand Island, Neb.

Kansas State Soldiers' Home, Dodge City, Kans.

California Veterans' Home, Yountville, Cal.

South Dakota Soldiers' Home, Hot Springs, S. Dak.

Colorado Soldiers' and Sailors' Home, Monte Vista, Colo.

New Hampshire Soldiers' Home, Tilton, N. H.

The word "news" was not, as many suppose, derived from the adjective new, but from the fact that many years ago it was customary to put at the head of the periodical publications of the day the initial letters of the compass, thus:

N
W—|—E
S

Signifying that the matter contained therein was from the four quarters of the globe, From these letters came the word "news."

Workshop Rules and Receipts.

MOISTURE-PROOF GLUE.—One pound glue, melted in two parts skim-milk.

TO REMOVE RUST FROM STEEL.—Brush the rusted steel with a paste composed of $\frac{1}{2}$ oz. cyanide potassium, $\frac{1}{2}$ oz. castile soap, 1 oz. whiting, and enough water to make a paste. Then wash the steel in a solution of $\frac{1}{2}$ oz. cyanide potassium in 2 oz. water.

TO TEST QUALITY OF IRON.—A *soft, tough iron* is indicated by the fracture giving long, silky fibers of a grayish hue, the fibers cohering and twisting together before breaking. *Badly refined iron* is indicated by short, blackish fiber. *Good iron* is indicated by a medium, even grain, mixed with fibers. *Brittle Iron* is indicated by coarse grain, with brilliant crystallized fracture, brown or yellow spots. It works easily when heated, and welds easily.

HOT SHOT IRON is indicated by cracks on the edge of bars. Good iron heats readily, throws few sparks, and is soft when hammered.

MARINE GLUE.—One part India rubber, twelve parts mineral naphtha. Mix, heat gently, and add twenty parts of shellac, powdered fine. Cool on a slab. Heat to 250 degrees when wanted for use.

PARTING SAND.—Burnt sand, scraped from the surface of castings.

LOAM.—Mixture of brick, clay and old foundry sand.

BLACKENING FOR MOLDS.—Charcoal powder, or, in some instances, fine coal dust.

BLACK WASH.—Charcoal, plumbago and size.

MIXTURE FOR WELDING STEEL.—1 sal ammoniac, 10 borax, pounded together, and fused until clear, when it is poured out, and, after cooling, reduced to powder.

Notes on Working of Steel.

1. Good, soft heat is safe to use if steel be immediately and thoroughly worked.

It is a fact that good steel will endure more pounding than any iron.

2. If steel be left long in the fire, it will lose its steely nature and grain, and partake of the nature of cast iron.

Steel should never be kept hot any longer than is necessary to the work to be done.

3. Steel is entirely mercurial under the action of heat, and a careful study of the tables will show that there must, of necessity, be an injurious internal strain created whenever two or more parts of the same piece are subjected to different temperatures.

4. It follows, that when steel has been subjected to heat not absolutely uniform over the whole mass, careful annealing should be resorted to.

5. As the change of volume due to a degree of heat increases directly and rapidly with the quantity of carbon present, therefore high steel is more liable to dangerous internal strains than low steel, and great care should be exercised in the use of high steel.

6. Hot steel should always be put in a perfectly dry place, of even temperature, while cooling. A wet place in the floor might be sufficient to cause serious injury.

7. Never let any one fool you with the statement that his steel possesses a peculiar property which enables it to be "restored" after being "burned;" no more ~~as in~~ you waste any money on nostrums for restoring burnt steel.

We have shown how to restore "overheated" steel.

For "burned" steel, which is oxidized steel, there is only one way of restoration, and that is, through the knobbling fire or the blast furnace.

"Overheating" and "restoring" should only be allowable for purposes of experiment. The process is one of disintegration, and is always injurious.

8. Be careful not to overdo the annealing process; if carried too far it does great harm, and it is one of the commonest modes of destruction which the steel-maker meets in his daily troubles.

It is hard to induce the average worker in steel to believe that very little annealing is necessary, and that very little is really more efficacious than a great deal.

The mean strength of American wrought iron is 45,900 lbs.; English 43,900. Ultimate extension of wrought iron is 600th part of its length. The working strain is from 1-6 to $\frac{1}{4}$ the mean strength.

Resistance to flexure, acting evenly over the surface, equals one-half the tensile strength. Bars of wrought iron will expand or contract 151200th of their length for each degree of heat. With range of temperature of this country ($=20$ to $+120^{\circ}$) $=140^{\circ}$, will expand or contract 1080th part of its length, equal to a force of 20,740 lbs., or $9\frac{1}{4}$ tons per square inch of section. Tensile strength increases, in from 1 to 6 reheatings and rollings, from 43,904 lbs. to 60,824 lbs.; in from 6 to 12, is reduced again to 43,904.

Capacity of Cisterns.

For each ten inches in depth.

| | |
|---|---------------|
| Twenty-five feet in diameter holds..... | 3,059 gallons |
| Twenty feet in diameter holds..... | 1,958 gallons |
| Fifteen feet in diameter holds..... | 1,101 gallons |
| Fourteen feet in diameter holds..... | 959 gallons |
| Thirteen feet in diameter holds..... | 827 gallons |
| Twelve feet in diameter holds..... | 705 gallons |
| Eleven feet in diameter holds..... | 592 gallons |
| Ten feet in diameter holds..... | 489 gallons |
| Nine feet in diameter holds..... | 396 gallons |
| Eight feet in diameter holds..... | 313 gallons |
| Seven feet in diameter holds..... | 239 gallons |
| Six and one-half feet in diameter holds..... | 206 gallons |
| Six feet in diameter holds..... | 176 gallons |
| Five feet in diameter holds..... | 122 gallons |
| Four and one half feet in diameter holds..... | 99 gallons |
| Four feet in diameter holds..... | 78 gallons |
| Three feet in diameter holds..... | 44 gallons |
| Two and one-half feet in diameter holds..... | 30 gallons |
| Two feet in diameter holds..... | 19 gallons |

AFRICAN EXPLORATIONS.

The return of Henry M. Stanley from the rescue of Emin Pasha, during the summer of 1890, has excited a good deal of interest in the country, especially so since last year about 6,000,000 square miles of African territory has been taken and divided among the nations of Europe. The object of Mr. Stanley's last trip through Africa was for the relief of Emin Pasha, who had been appointed governor of Equatoria by Gen. Gordon previous to his own fall in Khartoum. This was in 1878. Emin at once entered upon his duties, which involved him in constant warfare with the Arab slave traders and the Mahdi. Up to 1886 he was entirely cut off from the outside world and nothing could be heard of him. It was known that he had ten fortified stations on the Nile and 1,500 soldiers. Dr. Junker, the Russian explorer, left Emin Jan. 1, 1886, and after many dangers reached Europe. His account of the perilous position of Emin created a profound impression in Europe and plans were formed to rescue him. Money was raised and the relief expedition was placed under the command of Mr. Stanley. He left London for Zanzibar Feb. 3, 1887, which he reached on the 21st and started at once for the mouth of the Congo, arriving there March 18, 1887. The next day he started up the Congo river and on the 28th of June reached the Aruwimi river, which is about one hundred miles north of the equator and about two-fifths of the way across, near longitude 25 east from Greenwich. From this point Stanley started across an unknown wilderness with 389 officers and men. Of the indescribable horrors encountered in fights with the natives, sickness and death of his men, hunger and sufferings of every conceivable kind, there is not space to speak. It was not until the last of February, 1889, that Stanley met Emin. To his dismay he found Emin not willing to leave the country, although he was a prisoner. At last, being influenced by the offer of a commission from the king of Belgium, he decided to unite his forces with those of Stanley and go to Bagamoyo on the Indian ocean, where they arrived Dec. 4, 1889. The distance to the mouth of the Congo was about six thousand miles and the time occupied in the journey was nearly three years.

RELATIVE RANK OF STATES AND TERRITORIES IN POPULATION.

| 1890. | | 1880. | |
|---------------------------|-----------|---------------------------|-----------|
| 1. New York..... | 5,997,853 | 1. New York..... | 5,082,871 |
| 2. Pennsylvania... | 5,258,014 | 2. Pennsylvania.... | 4,282,891 |
| 3. Illinois..... | 3,826,351 | 3. Ohio..... | 3,198,062 |
| 4. Ohio..... | 3,672,316 | 4. Illinois..... | 3,077,871 |
| 5. Missouri..... | 2,679,184 | 5. Missouri..... | 2,679,184 |
| 6. Massachusetts... | 2,238,943 | 6. Indiana..... | 1,978,304 |
| 7. Texas..... | 2,235,523 | 7. Massachusetts... | 1,783,085 |
| 8. Indiana..... | 2,192,404 | 8. Kentucky..... | 1,648,690 |
| 9. Michigan..... | 2,093,889 | 9. Michigan..... | 1,636,937 |
| 10. Iowa..... | 1,911,896 | 10. Iowa..... | 1,624,615 |
| 11. Kentucky..... | 1,858,635 | 11. Texas..... | 1,591,749 |
| 12. Georgia..... | 1,837,353 | 12. Tennessee..... | 1,542,389 |
| 13. Tennessee..... | 1,767,518 | 13. Georgia..... | 1,542,180 |
| 14. Wisconsin..... | 1,686,880 | 14. Virginia..... | 1,512,565 |
| 15. Virginia..... | 1,655,980 | 15. North Carolina.. | 1,399,750 |
| 16. North Carolina.. | 1,617,947 | 16. Wisconsin..... | 1,315,497 |
| 17. Alabama..... | 1,513,017 | 17. Alabama..... | 1,262,505 |
| 18. New Jersey..... | 1,444,933 | 18. Mississippi..... | 1,131,597 |
| 19. Kansas..... | 1,427,096 | 19. New Jersey..... | 1,131,116 |
| 20. Minnesota..... | 1,301,826 | 20. South Carolina.. | 997,577 |
| 21. Mississippi..... | 1,289,600 | 21. Kansas..... | 996,096 |
| 22. California..... | 1,208,130 | 22. Louisiana..... | 939,946 |
| 23. South Carolina.. | 1,151,149 | 23. Maryland..... | 934,943 |
| 24. Arkansas..... | 1,128,179 | 24. California..... | 864,694 |
| 25. Louisiana..... | 1,118,587 | 25. Arkansas..... | 802,525 |
| 26. Nebraska..... | 1,058,910 | 26. Minnesota..... | 780,773 |
| 27. Maryland..... | 1,042,390 | 27. Maine..... | 648,936 |
| 28. West Virginia... | 762,794 | 28. Connecticut.... | 622,700 |
| 29. Connecticut.... | 746,258 | 29. West Virginia... | 618,457 |
| 30. Maine..... | 661,086 | 30. Nebraska..... | 452,402 |
| 31. Colorado..... | 412,198 | 31. New Hampshire.. | 346,991 |
| 32. Florida..... | 391,422 | 32. Vermont..... | 332,286 |
| 33. New Hampshire.. | 376,530 | 33. Rhode Island.... | 276,531 |
| 34. Washington..... | 349,390 | 34. Florida..... | 269,493 |
| 35. Rhode Island.... | 345,506 | 35. Colorado..... | 194,327 |
| 36. Vermont..... | 332,422 | 36. Dis. of Columbia | 177,624 |
| 37. South Dakota... | 328,808 | 37. Oregon..... | 174,768 |
| 38. Oregon..... | 313,767 | 38. Delaware..... | 146,608 |
| 39. Dis. of Columbia | 230,392 | 39. Utah..... | 143,963 |
| 40. Utah..... | 207,905 | 40. New Mexico..... | 119,565 |
| 41. North Dakota.... | 182,719 | 41. Dakota..... | 99,177 |
| 42. Delaware..... | 168,493 | 42. Washington..... | 75,116 |
| 43. New Mexico..... | 153,593 | 43. Nevada..... | 62,266 |
| 44. Montana..... | 132,159 | 44. Arizona..... | 40,440 |
| 45. Idaho..... | 84,385 | 45. Montana..... | 39,159 |
| 46. Oklahoma..... | 61,834 | 46. Idaho..... | 32,610 |
| 47. Wyoming..... | 60,705 | 47. Wyoming..... | 20,789 |
| 48. Arizona..... | 59,620 | | |
| 49. Nevada..... | 45,761 | | |
| United States..62,622,250 | | United States..50,155,783 | |
| | | Gain.....12,467,467 | |

RELIGIOUS STATISTICS.

NUMBERS IN THE WORLD ACCORDING TO CREEDS.

| CREEDS. | No. of Followers. |
|-------------------------------|-------------------|
| Christianity..... | 420,000,000 |
| Buddhism..... | 340,000,000 |
| Mohammedanism..... | 210,000,000 |
| Brahmanism..... | 175,000,000 |
| Confucianism..... | 80,000,000 |
| Sintoism..... | 14,000,000 |
| Judaism..... | 7,000,000 |
| Fetichism and all others..... | 180,000,000 |

ENGLISH-SPEAKING RELIGIOUS COMMUNITIES
OF THE WORLD.

| | |
|--|------------|
| Episcopalians..... | 23,000,000 |
| Methodists of all descriptions..... | 16,960,000 |
| Roman Catholics..... | 15,200,000 |
| Presbyterians of all descriptions..... | 11,100,000 |
| Baptists of all descriptions..... | 8,600,000 |
| Congregationalists..... | 5,500,000 |
| Free Thinkers..... | 3,500,000 |
| Lutherans, etc..... | 1,750,000 |
| Unitarians..... | 1,250,000 |
| Minor Religious Sects..... | 4,000,000 |
| Of no particular Religion..... | 13,500,000 |

English-speaking Population..... 104,360,000

PERPETUAL MOTION.

Perpetual motion is a movement which is not only self-active but also self-creative. A machine which when set in motion would continue to move without the aid of external force and without the loss of momentum, until its parts were all worn out, might be said to have solved the perpetual motion problem. But even more is expected of this invention should it ever become practicable, that it shall go on doing work without drawing on any external source of energy, or shall by its movement continually create power. The impossibility of constructing such a machine has long been demonstrated, but still ignorant and ambitious inventors continue to try for it. As early as the year 1775, the Parisian Academy of Sciences refused to receive any further schemes for perpetual motion, regarding it as an impossibility. There was a time when the perpetual motion problem was worthy the attention of a philosopher, just as there was a time when a man might have been justified in doubting whether the earth was a globe.

EUROPE.

Europe is a peninsula, projecting from Asia. It is situated in the same latitude as the United States and the Dominion of Canada.

The extreme length of Europe from northeast to southwest is about 3,500 miles. The population is about six times that of the United States.

Its water boundary, if a continuous line, would reach four-fifths of the way around the world.

The British Isles are separated from the continent by the North Sea, which has an average depth of about 600 feet. There is much evidence to show that they were formerly a part of the mainland.

In relative extent of coast Europe surpasses all other countries. It is partly to the great number of indentations of the coast that Europe owes its commercial supremacy.

The islands of Europe constitute about one-twentieth of its area.

The greater part of the continent is low and level. Russia and all the territory bordering on the North and Baltic seas constitute a vast plain, called Low Europe. The basin of the Caspian Sea and much of the Netherlands are below the sea-level.

A high plateau, extending along the southern part of the continent, is known as High Europe. This plateau is surrounded by the irregular and broken mountain ranges which constitute the Alpine System, the main axis of the continent.

The Alps are the highest range. The other principal ranges are the Pyrenees, Apennines, Balkan, Carpathian and Caucasus mountains.

The Alps have long been celebrated for the number and extent of their glaciers, among which are the sources of the Rhine, Rhone, Po and several tributaries of the Danube.

The chief lake region of Europe is in Northwestern Russia. Lake Ladoga is the largest lake.

The lakes in Switzerland, especially Geneva and Constance, are celebrated for their beautiful scenery. There are many salt lakes in Russia, most of which are situated in the basin of the Caspian Sea.

Most of the rivers of Western Europe are connected with one another by canals, and are navigable.

CLIMATE.—Europe enjoys a more equable climate than any other country situated in corresponding latitudes. Its mildness is due, chiefly, to the southwesterly winds, which are warmed by the water of the Gulf Stream.

Rain is most abundant on the western coasts.

The tundras, or frozen marshes of the Arctic Slope, are covered with mosses and willows. South of this region is a belt of dense forest, chiefly of pine, oak, elm and ash.

Grains, hemp, flax and tobacco are cultivated in the central regions. The cultivation of the grape, olive, orange, lemon, fig, mulberry and cotton is confined, chiefly, to the Mediterranean Coast.

Most of the wild animals have disappeared. The reindeer, white bear and other animals valuable for their furs are, however, found in the more thinly settled regions; the wolf and wild boar are common in the forests, and the chamois and ibex inhabit the Alpine heights.

Water-fowl are numerous. The sardine, herring, pilchard, anchovy and other fish suitable for food abound in the surrounding waters.

MINERALS.—Coal, iron and copper are very widely distributed. Silver, zinc and lead are plentiful in the central highlands. Quicksilver, niter, sulphur and salt in volcanic regions. Coral of great beauty and value is obtained in the Mediterranean Sea.

PEOPLE.—The inhabitants of Europe, numbering about 330,000,000, belong to the Caucasian and Mongolian races.

ASIA.

Asia, the largest country in the world, occupies the eastern part of the Eastern Continent.

It contains about one-third of the land surface of the earth—is twice as large as North America, and nearly five times the size of the United States. Its greatest length is 7,500 miles, nearly one-third the circumference of the earth.

The islands of Asia are a partly submerged mountain chain. All of them volcanic.

The northwestern Asia is a continuous plain; the southeastern, an elevated plateau traversed by high mountains. The line of greatest length is also the line which separates the highlands from the lowlands. From the Hindoo Koosh, the mountain ranges of Asia radiate toward the east.

The Himalaya Mountains are the highest in the world. The summit of Mt. Everest is over 29,000 feet above the sea-level, being more than 6,000 feet higher than the highest peak of the American continent.

The Caspian Sea and the Sea of Aral are thought to have been formerly arms of the ocean. Both are salt lakes. The former is below the sea-level.

Lake Baikal is the largest body of fresh water in Asia and is about as large as Lake Erie.

The rivers of Asia, though of great length, are distinguished by narrow valleys, rather than large basins. Most of them rise in the central highlands, from which they radiate in three directions,—north, east, and south, and mingle their waters with those of three oceans.

The Yang-tse and Hoang rivers are subject to great changes, brought about by the shifting of their channels. In 1851, the Hoang Ho burst through its banks and poured its waters into the Gulf of Pecheelee, and within two years its lower course had so changed that the mouth of the river had shifted 250 miles from its former position.

Central Hindoostan is often called the Plateau of the Deccan.

The Obi is the only river navigable to any considerable distance.

The river valleys and the plains which are well watered are extremely fertile. The high, central region and the western plateaus are dry, sandy, and barren.

Every degree of temperature and moisture may be found in Asia, from that of the frozen tundras of Siberia, to that of the hot, pestiferous jungles of India. The deserts of Arabia, Persia, Turkestan and Gobi receive little or no rain, while the southern slope of the Himalaya is annually inundated.

Siberia is swept by icy winds from the Arctic Ocean; Arabia, by the hot and fatal simoom. India is traversed by winds which scorch the entire surface for half the year, and flood it with rain the remaining part.

Destructive cyclones often visit the coast, frequently piling up the waters of the Bay of Bengal until the lowlands of the Ganges are submerged.

Southern Asia is covered with a dense tropical vegetation. The palm, bamboo, and banyan tree are abundant. Rice, cotton, sugar-cane, flax, jute, hemp, poppy, and the spices, are the principal plants cultivated in the plains and valleys of Southern Asia.

Central Asia produces the plants which thrive best in the temperate zones. Vast forests of pine, larch, teak, maple and birch are on the upland terraces of Siberia. The chief cultivated plants of Central, Eastern and Southeastern Asia are wheat, tea and rice.

Western Asia produces the famous Mocha coffee, tobacco, the fig, date and olive.

Nearly all the domestic animals of the earth are found in Asia, and most of them are native to it. The camel and elephant are used as beasts of burden.

Southern Asia abounds in fierce animals and dangerous reptiles. The largest animals are the elephant, rhinoceros, tapir, lion, tiger, hyena, and jackal. The reptiles include the crocodile, python and cobra de capello. Monkeys and beautiful birds are numerous.

In the colder regions the bear, wolf, fox, buffalo and several species of wild cattle are common. Also many kinds of deer.

Gold and platinum are widely diffused throughout the Ural Mountains and the central plateaus.

Silver is mined in Siberia. Copper and iron are abundant and widely distributed.

Tin is abundant in the Malay Peninsula and the Island of Banca, near Sumatra.

Petroleum is found in the basin of the Caspian Sea.

Asia has always been famous for precious stones. Most of the large and valuable diamonds, sapphires, rubies, and emeralds are from the mines of India.

The finest pearls are obtained in the Persian Gulf and in the water along the coasts of Ceylon.

Asia is probably the birthplace of the human race. The strongest evidences of history and science point to the highlands of Asia as the birthplace of man. Somewhere in the valleys of Persia, the old name of which was Arya, there lived a people who built houses, cultivated the soil and had forms of government.

They believed in an Omipotent Being and also a spirit of evil. Fully one-half the inhabitants of the earth live in China and India.

Siberia, Russian Turkestan and Trancaucasia are subject to Russia, whose capital is St. Petersburg.

Siberia may be divided into three belts; agricultural and grazing land in the South; forests in the middle; and frozen marshes in the North.

Gold, silver, copper and other metals are mined in the mountains; and numerous wild animals are hunted for their furs.

Trade is carried on by means of caravans and camel trains. In summer boats navigate the rivers, and in winter sledges are drawn on the ice and snow by dogs, horses and reindeer.

The chief cities are Tiflis in Transcaucasia, west of the Caspian Sea; Tashkend, in Russian Turkestan; Omsk, in Western Siberia; and Irkootsk, in Eastern Siberia. Yakootsk, on the Lena River is said to be the coldest city in the world.

The Chinese Empire is larger by one-half than the United States and contains about six times as many inhabitants.

China contains the greater part of the population. The land is fertile and well cultivated, agriculture being the chief occupation of the people. Rivers and canals are numerous; much traveling is done in boats. Thousands of the inhabitants of China have their houses and gardens on rafts and boats which float on the rivers. These people live by gardening and fishing. In their floating houses their children are born, are married and die. A young child-falling overboard there is kept from drowning by means of an empty gourd which its mother had tied between its shoulders.

The food of the Chinese consists, principally, of rice and fish.

The leading exports from China are tea, silk, porcelain and pottery.

Its trade is carried on, mainly, with Great Britain, Australia and the United States, by means of ships, and with Russia by means of caravans.

Many of the inhabitants of the other divisions of the empire are wandering tribes, whose occupation is the raising of horses, sheep and goats.

Pekin, the capital of the Chinese Empire, is noted for its surrounding walls, magnificent gates and heathen temples. Its houses are only one or two stories high. Its population is greater than that of New York City.

Thibet is situated on a high plateau, surrounded by the highest mountains in the world.

Corea is a kingdom. It was, until recently, under the control of the Chinese government.

The Empire of Japan consists of islands, which contain mountains, streams, forests, and a well cultivated soil. Japan contains beautiful lakes, rivers, water-falls, trees, and flowers of great variety; bears, deer, wolves, and foxes; pheasants and other birds. The celebrated mountain in Japan is Fujiyama, whose summit is covered with snow nearly all the year. In summer

bands of pilgrims dressed in white travel to its summit to worship idols there.

The principal occupations of the Japanese are agriculture, manufacturing and mining.

Its exports comprise tea, rice, silks, porcelain, fans and lacquered ware.

Tokio, the capital, is the residence of the emperor, called the mikado. Its chief port is Yokahama.

India is larger than all the Pacific States and Territories, and contains about four times as many inhabitants as the United States.

The Empire of India is ruled by the Governor-General, who is appointed by Victoria, Queen of Great Britain and Ireland and Empress of India. Next to the Chinese Empire it is the most populous in the world. India was settled by the Aryans, about 1400 B. C. They were Brahmins, but unlike the Brahmins of the present time in their religious teaching and practices. Their language was the Sanskrit. The people are divided into castes. They believe in the transmigration of souls. Gautama or Buddha, about 500 B. C., introduced a form of religion which, after a long struggle with Brahmanism, was overcome in India and transplanted in China, where it has degenerated into a debasing form of idolatry. Queen Elizabeth chartered the East India Company in 1600 A. D. The vast empire, which had grown by its conquests, was transferred to the British Crown in 1858.

Nearly the whole of India is subject to Great Britain, either absolutely or as tributary states.

India is remarkable for its high, snow-covered peaks, hot climate and large population.

Its low plains in the north are the most fertile in the world. The west and south contain desert tracts.

Agriculture and stock-raising are the principal industries.

The exports are cotton, opium, rice, wheat and jute. Cattle, camels, buffalos, sheep and goats are numerous. The inhabitants subsist, principally, upon rice, fish and tea.

Calcutta is the capital and the largest city in India, and the most important city in Asia. Bombay, on the western coast, and Madras, on the eastern, are important cities.

Ceylon is a mountainous island, belonging to Great Britain. It is famous for coffee and spices. Pearl oysters abound on the southern coast, and the fishery is often very profitable.

Farther India or Indo-China, forming the southeastern peninsula of Asia, comprises the kingdoms of Burmah, Siam and Anam, Lower Cochin China, Cambodia and the Malay Peninsula.

This division of Asia is remarkable for its long mountain ranges and fertile valleys, its hot, moist climate, and its dense forests and jungles.

It contains large, savage animals, and many tribes of people scarcely removed from barbarism.

The chief occupation of the inhabitants is the cultivation of rice, which is their principal article of food.

Bangkok, the capital of Siam, is the largest city in Farther India. It contains royal palaces and many pagodas. These are surrounded by bamboo houses built on piles.

Mandalay is the capital of Burmah.

Saigon is a sea-port of French Cochin China.

Singapore, on the Island of Singapore, is a sea-port belonging to Great Britain.

Persia, Afghanistan, Beloochistan and Bokhara are remarkable for their desert tracts, forest-covered mountains and fertile river valleys.

The principal products are grain, fruits, sugar, indigo and dates.

Many of the inhabitants own large flocks of goats and sheep, while others are engaged in the manufacture of silk goods, shawls, rugs and perfumery, or in the caravan trade. There are, also, many roving, warlike tribes. Nearly all are Mohammedans.

Persia is remarkable for extensive salt deserts. Near the Caspian Sea, however, vegetation is luxuriant. Here, as in other Mohammedan countries, education is confined to learning portions of the Koran and scraps of poetry. The Persians are a slow, easy-going people, hospitable, generous, but procrastinating.

These countries are important because of their situation between Russia and the Indian Ocean. Afghanistan has been called the "gateway to India."

Teheran, the capital of Persia, and Tabriz, are the chief cities.

Cabul, Herat and Candahar are the principal cities in Afghanistan.

Arabia is chiefly a hot, desert plateau, with oases of different sizes, in which dates, grapes, tamarinds and other fruits grow.

It has no general government, the inhabitants being ruled by sheiks or chiefs. The rulers are called Sultans.

Arabia is celebrated for fine dromedaries and horses, and excellent coffee.

Muscat, the capital of Oman, is the largest city in Arabia, and the chief sea-port.

Aden is a fortified sea-port belonging to Great Britain.

Mecca, the birthplace of Mohammed, is visited by many Mohammedan pilgrims every year. It is said to be the hottest city in the world.

Turkey in Asia is a part of the Ottoman, or Turkish Empire, whose capital is Constantinople.

Its northern part is remarkable for forests, mountains and fertile valleys. Its eastern part for the fertile plains of the Tigris and Euphrates, and its southern for a desert region.

Tropical fruits, cotton, grain and tobacco grow abundantly.

The people are chiefly Turks and Arabs, professing the Mohammedan religion.

Smyrna, an important commercial port and steamer station, is the largest city.

Damascus is the oldest city in the world. It contains grand old

mosques, and is the center of the caravan trade. Its manufactures comprise saddles and silk goods.

Palestine, or the Holy Land, is mentioned in Scripture as the Promised Land of the Ancient Hebrews, and the birthplace of Christianity. It contains the cities of Jerusalem and Bethlehem, the Valley of the Jordan, the Dead Sea and the Sea of Galilee.

AFRICA.

Africa, the south-western continent of the Old World, is the only country stretching entirely across the Torrid Zone.

It is a peninsula, joined to Asia by the Isthmus of Suez. The ship-canal, constructed across the isthmus, makes it, artificially, an island. The shortest distance across the Isthmus of Suez is about seventy-two miles; the line of the canal is one hundred miles. The average height of the isthmus above sea-level is scarcely ten feet.

The Suez Canal was completed in 1869. It has a depth of twenty-four feet, and a clear channel seventy-two feet in width. By connecting the Red sea with the Mediterranean, this canal furnishes a shorter route between European ports and India, than that around the Cape of Good Hope. It extends from Port Said, on the Mediterranean, to Suez, a sea-port town near the head of the Gulf of Suez.

Africa is the second country in size. Its length and breadth are each about 5,000 miles.

The coast is unbroken by bays and inlets such as make secure harbors for vessels. In proportion to its size, it has the shortest coast-line.

There are many continental islands lying along the coast of Africa. Madagascar, the largest, is separated from the continent by a very shallow channel.

The interior of Africa is a plateau, which is highest in the south and south east. This, in most parts, is bordered by mountains, between which and the sea is a low and narrow strip of coast.

The average elevation of the high plateau is about 5,000 feet; and of the northern region, about 1,500 feet.

The principal mountain system extends along the eastern side of the continent. Mount Kenia, the highest peak, is about 20,000 feet above the level of the sea.

The Great Sahara Desert has an undulating surface, and is covered mostly with shifting sand and gravel. A small portion, south of Barca, is below the sea-level.

Oases, watered by springs and covered with groves of date-palms, are met with in different parts of the desert.

Soudan, situated south of the Great Desert, is a region remarkable for its extreme heat and excessive rains and droughts.

Central Africa, or the region crossed by the Equator, is remarkable for its fertility; and, owing to its great height above the sea-level, its climate is mild and healthful. This region is drained by many large rivers.

Southern Africa is mountainous, but it contains many fertile valleys and plains well adapted to agriculture and stock-raising. The Kalahari Desert, though destitute of streams, is covered during a great part of the year with grass. The lakes of Africa are confined chiefly to the high, equatorial region, and are remarkable for their number and size. Lake Victoria is the largest lake in the world. Its outlet is the Nile river.

The River Nile flows through the most important part of Africa. Its lower course is in a region almost rainless, and for more than 1,500 miles it does not receive a single tributary. It is fed by the annual rains and the melting snows of the high mountains.

The water of the Nile is highest from May till September, when the lower valley is covered with a fine, rich soil, brought down by the flood: and the seeds which are scattered over the water, as it subsides, bring forth abundant crops of grain. Cotton, also, is an important product of the Nile Valley.

The Congo, first explored by Livingstone, and afterward by Stanley, drains the most fertile part of the continent. Its source is in the region of heavy rains.

The region of greatest heat is in the Egyptian Soudan. There the midday temperature during the summer months is often 140 deg. Fahr., while the nights are sometimes so cold that ice forms. In the desert, hot winds, known as simooms, are prevalent, and sand storms are often destructive. The coast, generally, is very unhealthy.

Southern Africa possesses a mild and genial climate. Here are the principal settlements formed by Europeans in Africa. This is the home of the Caffre.

Northern Africa yields grain, cotton, dates, almonds, and olive-oil. Rice is a leading product of the Guinea Coast. The date-palm flourishes along the shores of the Mediterranean and in the oases of the desert. The famous baobab-tree is found in Central Africa. It is famous for its great size and age. Groves of teak, mangrove, ebony, and India rubber abound on the western coast. Gum arabic, myrrh, cotton, coffee, sugar-cane, and spices are products of Eastern Africa. The islands produce tropical fruits, wine and amber.

Africa is noted for large and ferocious animals, and venomous serpents. The lion is found in all parts of the continent. The hippopotamus inhabits the upper Nile, while the marshes and streams of the low coast contain many crocodiles, lizards, and other reptiles.

The gorilla, the largest and fiercest of apes, and the chimpanzee, are met with in the west. The elephant, giraffe, and the two-horned rhinoceros, belong in Central and Southern Africa. There are many species of deer and antelope. The zebra and the gnu or horned horse, are numerous in the grassy plains of Southern Africa. The ostrich is hunted in various parts of the continent; but in Southern Africa, the rearing of those birds for their plumes is an important occupation.

The most useful animal in crossing desert regions is the camel. Travelers and merchants, with their camels carrying merchandise,

cross the desert in companies, called caravans. For more than four thousand years camels have been almost the sole means employed to carry merchandise across the deserts. The camel will carry a load of four or five hundred pounds weight fifty miles a day for five or six days, although he may not be supplied with food or water during that time.

The coasts of Guinea and Senegambia have long been celebrated for gold. Copper, lead, salt, and saltpeter are obtained in some places.

Important diamond fields are in South Africa.

Africans comprise three races—the Caucasian, Negro, and Malay.

The Moors, Arabs, Berbers, Egyptians, and various tribes of the north are Caucasians; the tribes of Central and Southern Africa, and the east and west coasts, Negroes; and those of Madagascar, Malays.

Excepting the European colonists who have settled along the coast, nearly all the Caucasian inhabitants are Mohammedans, and are in a low state of civilization.

Most of the Negro tribes of Africa are savages, in a degraded condition. There are, however, several tribes which cultivate the soil, raise cattle, and observe laws.

The Barbary States, situated on the Mediterranean coast, extend from the Atlantic Ocean to Egypt.

The climate is mild and healthful. South of the Atlas Mountains, it is extremely hot and arid. There are two seasons, a rainy and a dry.

The highlands are covered with forests of cedar, pine, cork-trees and other valuable timber. The lowlands are finely adapted to agriculture.

The most important productions are dates, oranges, bananas, pomegranates and figs.

The natives consist of Moors, Arabs, and Berbers. Although descended from a very enlightened people, they are extremely ignorant, degraded and treacherous. The foreigners are mainly French and Jewish colonists. Wherever they settled, agriculture, manufactures and commerce quickly followed.

Morocco is under the absolute government of a sultan, who is subject to Turkey. The country is sparsely settled. Cattle, sheep, and goats are reared extensively.

In tanning and dyeing leather the people exhibit great skill, and the leather manufactured there is exported to all parts of the world.

Morocco and Fez are the most important cities. The sultan holds court at one and the other, alternately.

Algeria is a French possession, and contains a large European population. It is one of the most prosperous of the Barbary States.

Several lines of railway are in operation, and caravans, trading in ivory, gums and ostrich feathers, penetrate the interior of Soudan.

Algiers is the capital and commercial center. It is connected with Marseilles by a submarine telegraph cable.

Tunis, also, is a French possession. It was formerly subject to Turkey. It is noted for its olive groves, date plantations, coral fisheries, and the manufacture of red caps, soap and leather.

Tunis, near the site of ancient Carthage, is the capital and sea-port. It is a very old city.

Tripoli, though nominally a Turkish province, is a despotic monarchy, governed by a bey.

It contains no rivers, and rain seldom falls; yet, on account of heavy dews, the soil is productive.

The leading exports are wool, hides,* and ivory.

Tripoli is the capital and sea-port. Mourzouk, the capital of Fezzan, is the center of a large caravan trade,

The Nile Countries comprise Egypt proper, Nubia, and the Egyptian Soudan, or Kingdom of the Mahdi. They are governed by a hereditary monarch called the khedive, and are subject to Turkey.

The greater part of Egypt is a desert. Along the lower course of the Nile, only the narrow valley, which is annually inundated, is capable of producing crops.

Since the completion of the Suez canal rapid progress has been made in developing the agricultural and commercial interests of Egypt.

Railways have been built, and by means of irrigating canals extensive tracts of desert land have been made productive.

Most of the wealthier classes have been educated in Europe, and foreign customs are being introduced throughout the country. The laboring classes are greatly oppressed, and are practically in a state of slavery.

The principal products of Egypt are cotton, grain, sugar and rice. Gum arabic, ivory, indigo, and ostrich feathers are obtained in the Soudan. Manufactories have been established in the larger cities and towns.

Cairo, the capital of Egypt, is the largest city in Africa. Alexandria is the principal sea-port. Railways connect both cities with Suez, the southern sea-port of the Suez Canal. The northern, or Mediterranean, seaport of the canal is Port Said.

The other seaports of Egypt are Rosetta and Damietta.

Nubia and the Egyptian Soudan are inhabited by warlike tribes of Arab and Negro descent.

Khartoum, at the junction of the Blue and the White Nile, is the center of a large caravan trade.

Abyssinia is a high and rugged plateau, containing a number of fertile valleys. The climate, owing to the high altitude of the surface, is mild and healthful. The people, though of a dark, or swarthy complexion, belong to the Caucasian race, and consist, chiefly, of Copts and Berbers, who are ignorant and degraded.

Abyssinia consists of several independent states, having no general government.

Gondar is the capital. Massowah, an Egyptian possession, is the only sea-port.

South Africa comprises several prosperous colonies. Some of these belong to Great Britain, others are independent states founded by Dutch settlers, while others still are the homes of native tribes.

Cape Colony and Natal are British colonies. The surface of the land is high, undulating and well adapted to grazing.

The leading occupations are the raising of cattle and sheep, and the rearing of ostriches. Wool and ostrich feathers are among the most valuable exports.

Cape Town, the capital of Cape Colony, is the chief sea-port of South Africa.

Pietermaritzburg is the capital of Natal.

West Griqualand, also a possession of Great Britain, contains the most productive diamond mines in the world.

Kimberly, its capital, is situated in the diamond fields, and is the chief market for rough diamonds.

Caffraria and Zululand are inhabited by natives who are noted for their intelligence, fine physical appearance and great bravery. Both countries are governed by native chiefs, although subject to Great Britain.

The Orange Free State and the South African Republic (formerly Transvaal) are inhabited by Dutch farmers, called Boers. The Boers are noted for their bravery and love of independence.

Bloemfontein is the capital of the Orange Free State, and Pretoria of the South African Republic. Wool, cattle and grain are the exports.

Central Africa includes the regions comprised in Sahara, or the Great Desert, Soudan, the Congo Free State and the territory southward to the Boer republics.

Sahara contains about twenty oases, inhabited by wandering tribes, who live chiefly by plundering the caravans.

Soudan is inhabited by semi-barbarous tribes, each of which is governed by a chief, whose will is law.

Their occupation is herding cattle, but they are constantly at war with one another.

Timbuctoo, Sackatoo and Kouka are centers of a large caravan trade.

The Congo Free State embraces the basin of the Congo River. It is subject to the King of Belgium.

Zanzibar is a strip of coast nearly 1,000 miles long, including a number of small islands. It is an absolute monarchy, governed by a sultan.

Zanzibar, on an island of the same name, is the capital. It is the center of a large trade in ivory, gum copal and spices. Trade is almost exclusively in the hands of Hindoo and Arab merchants.

Mozambique includes a number of Portuguese colonies, extending

from Zimuland to Zanzibar. The city of Mozambique, the chief center of trade, is the residence of the Governor-General.

The West Coast is covered with forests of valuable timber. The highlands contain gold and silver.

Senegambia includes most of the basins of the Senegal and Gambia rivers. English and French traders have settled along the coast.

Sierra Leone is a prosperous English colony. It is inhabited by Negroes, many of whom were rescued from slave-ships. Freetown is the capital.

Liberia is a small republic, originally established as a colony for freed slaves from the United States. Monrovia is the capital.

Dahomey and Ashantee are absolute despotisms.

The natives are superstitious, warlike and ferocious. In Dahomey wholesale murders, or human sacrifices, form part of certain celebrations. Here the king has an army of women whose weapons are muskets, swords and clubs. Ashantee, also, is ruled by a native king, who is independent.

Madagascar, a kingdom, contains a civilized population, whose principal industries are agriculture and herding.

St. Helena belongs to Great Britain; the Canary Islands to Spain; the Madeira, the Azores and the Cape Verd Islands to Portugal.

NORTH AMERICA.

North America is the northern division of the western continent. It extends almost from the North Pole to the Equator.

The shape of North America is nearly that of a triangle, broad at the north and tapering almost to a point at the south. Its length is nearly 5,000 miles. Its area is equal to one-half that of Asia, or two and one-half times that of Europe. Its northern and eastern coasts are remarkable for numerous indentations and good harbors, while the western coast has but few.

The western part of the continent is a high plateau, on which are many nearly parallel ranges of mountains. The direction of these ranges is from north-west to south-east. They constitute the Rocky Mountain system, and form the main axis of the continent. The culminating ranges of this system inclose a large, oval-shaped plateau, called the Great Basin.

The Appalachian system, in the eastern part, is composed of several parallel ranges, extending from north-east to south-west. Their average height is about 3,000 feet, or about one-third that of the Western Highlands,

Volcanoes are numerous in the Western Highlands, and several of them are constantly active.

The highest peak of the Rocky Mountain system is Mt. St. Elias, 19,500 feet; and of the Appalachian system, Mt. Mitchell, 6,707 feet.

The great central plain, extending from Hudson Bay to the Gulf of Mexico, lies between the two mountain systems. The Height

MAP OF NORTH & SOUTH AMERICA



of Land. an almost imperceptible divide, crosses the plain, separating the Arctic Slope from the Gulf Slope.

The lakes of North America are remarkable for their number and size. If a straight line were drawn from Chesapeake Bay to the mouth of the Mackenzie River, it would pass through nearly every large lake in North America.

The great lakes contain about one-half the fresh water on the globe. Lake Superior, the largest, however, is exceeded in size by Lake Victoria, in Africa.

Salt and alkaline lakes are numerous in the Pacific highlands. Great Salt Lake, in Utah, has an area twice that of Rhode Island. With the exception of the Caspian Sea, it is the largest salt lake on the globe.

The Mississippi basin is the largest basin in the world, excepting that of the Amazon river. Its chief stream, the Mississippi and Missouri, exceeds every other river in length.

The Yukon river, second in size, is, in many respects, unlike any other river on the continent. Its upper course is remarkable for falls and rapids. Its lower part contains many islands, and is often five and six miles wide.

The Columbia, Colorado, and many of their tributaries which rise in the interior of the continent, flow, in some places, through deep canons.

The soil is very productive. The Mississippi basin and the slopes of the Atlantic ocean and the Gulf of Mexico contain soil of great fertility. On the Pacific coast the climate is much milder than in corresponding latitudes on the Atlantic coast. The northern part of the continent is extremely cold; the central portion is characterized by hot summers and cold winters; the southern part, has a tropical climate. The rain-fall is greatest in the north-west and south-east. The rains of the Pacific Coast fall mostly in winter. In northern regions, vegetation is limited to mosses, lichens, and a few shrubs. A belt of cone-bearing and deciduous trees extends through the middle of the Temperate Zone. In the south, these are replaced by palms, tree-ferns, bananas, and agaves. Grasses are abundant throughout the Temperate Zone. Indian corn and tobacco are native to North America.

The fur seal, whale, walrus, polar bear, and musk-ox are the most important animals of the northern regions. The bison, deer, bear, wolf, and panther are common in the north central part. The grizzly bear is found in North America only. The monkey in the tropical regions.

Reptiles are numerous in the south. Nearly 500 species of birds are known. Fish are abundant; the cod, salmon, herring and mackerel are valuable as food.

The mineral resources of North America surpass those of any other continent. Iron and coal, minerals on which civilization and commerce so greatly depend, are abundant and widely distributed. Petroleum and natural illuminating gas are found in the Alleghany Mountains and the Coast Range. Gold, silver, and quick-silver are found chiefly in the Western Highlands; copper and lead, in

the vicinity of the Great Lakes; and zinc, in the Eastern Highlands.

American Indians inhabited North America at the time of the explorations in the 15th and 16th centuries. A civilized people preceding these had disappeared from the region which now constitutes the United States, as the ruins of their habitations bear witness.

Civilized people were found by the Spanish explorers of Mexico. They were conquered by the Spaniards, and gradually disappeared.

The Esquimaux, who are found in the Arctic regions only, are thought by many to be of Mongolian origin. The Indians, also, are said to be of Mongolian descent, and to have come, originally, from Asia.

The white race, the ruling element of the population, are the descendants of Europeans. The inhabitants of Mexico and Central America are the descendants, in part, of Spaniards and native Indians.

The Negroes, originally brought to America as slaves, are fast becoming educated.

Industries.—The geographical distribution of the various industries is more noticeable in North America than in the other continents. Foreign commerce, manufactures, and fisheries are confined chiefly to the coasts and navigable streams.

Agriculture is carried on, principally, throughout the fertile prairies and river-valleys of the interior. Stock-raising is most profitable where there are mild winters and an abundance of grass.

Mining is a leading industry in the highlands.

North America includes Danish America, British America, the United States of America, Mexico, Central America and the West Indies.

Danish America belongs to the Kingdom of Denmark. It comprises Greenland, Iceland, and a few smaller islands.

Greenland extends farther north than any other country, or to within about 400 miles of the North Pole. Its area is nearly one third that of the United States.

The surface of Greenland is covered with ice and snow. The coasts are scored by enormous glaciers. The products are fish, oil, and reindeer skins.

The people comprise a few Danes and a number of Esquimaux tribes.

Iceland, which is about half the size of Kansas, is noted for volcanoes, geysers, glaciers, and lava fields. Its southern part has a milder climate than its northern, and contains all the settlements.

The Icelanders are generally educated. Their trade is carried on with Copenhagen, the capital of Denmark. Their capital Reikiavik, contains a college.

THE UNITED STATES.

A Republic, it is the middle division of North America. Alaska, a territory occupying the northwestern part of North America, is partly in the North Temperate Zone and partly in the North Frigid Zone. It was purchased from Russia by the United States. Extends from the Atlantic Ocean on the east to the Pacific Ocean on the west, from the Dominion of Canada on the north to the republic of Mexico and the Gulf of Mexico on the south. The distance across the United States from east to west through the center, is about 2,600 miles, and from north to south about 1,600 miles. The shortest distance between the Dominion of Canada and the Gulf of Mexico is about 800 miles.

The high mountains and plateaus of the United States are in the western part. There the mining of gold and silver, and the raising of cattle and sheep, constitute the leading occupations of the people.

The plains, prairies, slopes and lowlands extending from the great highland region eastward to the Atlantic Ocean, are remarkable for their fertile soil, which produces immense crops of grain, cotton, fruits and vegetables.

The valleys of the Pacific Slope are noted for their mild, genial climate and their great yield of wheat, fruits and vegetables.

Coal and iron are mined extensively in various parts of the United States.

The variety and importance of the products and industries of this country are due principally to its vast extent of territory and its great diversity of soil, elevation and climate.

Its increase in population, wealth and power is unsurpassed. A century ago there were but thirteen states, containing less than 4,000,000 inhabitants. Now there are thirty-eight states, ten territories, and the District of Columbia, with a total population of more than 60,000,000. A territory is under the control of the General Government of the United States, until it is admitted into the Union as a state by Congress. The original thirteen states were New Hampshire, Massachusetts, Rhode Island, Connecticut, New York, New Jersey, Pennsylvania, Delaware, Maryland, Virginia, North Carolina, South Carolina and Georgia. The first states admitted after them were Kentucky, Vermont, Tennessee, Ohio, Louisiana, Indiana and Mississippi.

The first colonies in the region now called the United States were established by the English, in Virginia, in 1607; by the Dutch, in New York, in 1613; and by the Pilgrims, in Massachusetts, in 1620.

All were subject to Great Britain from 1664 to 1776, when the thirteen colonies declared themselves free and independent states.

Each state has its own constitution, laws, legislature, and governor, while all the states are united under the constitution and laws of the United States. A state is entitled to be represented in the United States Senate by two senators, and in the House of Representatives by one member for every 154,325 inhabitants.

Every state is entitled to, at least, one member. A territory may send a delegate to the House but he has no vote. There are at present 76 senators and 325 members of the House of Representatives. The states which have the largest representation in the House are New York 34 members, Pennsylvania 28, Ohio 21, and Illinois 20. The states and territories of the United States have legislatures consisting of two houses similar to those of Congress, elected by the people. They are divided into counties, which are, in some cases, subdivided into townships. The divisions of Louisiana corresponding to counties are called parishes. The highest officials in a state are the Governor, Lieutenant-Governor, Secretary of State, Attorney-General, and Superintendent of Schools. Towns and villages are collections of houses and inhabitants. Cities have certain rights and privileges not possessed by towns and villages. The affairs of a city are usually controlled by its mayor and aldermen. A county seat is the chief town in which the official business of the county is conducted.

The general government comprises three departments, the legislative, the judicial and the executive. It has control of all matters pertaining to commerce and treaties with foreign countries, the army and navy, the declaration of war, the post-offices, and the coining of money.

The legislative power is vested in Congress, which consists of the Senate, (composed of two senators from each state, chosen by the state legislature, for six years. The Vice-president of the United States is the president of the Senate) and House of Representatives. Congress holds its sessions in Washington. The session of Congress begins on the first Monday in December of each year. A law cannot take effect unless passed by both the Senate and the House of Representatives, and approved by the President. If, however, he disapprove a measure which has been passed by both houses of Congress, it may become a law on being repassed by two-thirds of each house.

The judicial power is vested in the Supreme Court, which interprets the laws. The Supreme Court consists of a chief-justice and eight associate justices, all appointed for life by the president with the consent of the Senate.

The executive power is vested in the President, whose duty is to execute or enforce the laws. He is elected for four years. The President and Vice-President are elected by a number of electors, called the electoral college, chosen by the people of the states, or their legislatures. Each state is entitled to a number of electors, equal to the whole number of senators and representatives to which it is entitled in Congress. In case of a vacancy in the office of President, it shall be filled by the Vice-President. If there be no Vice-President, the law of 1886 vests the succession in those members of the cabinet who are constitutionally eligible, in the following order: Secretary of State, Secretary of the Treasury, Secretary of War, Attorney-General, Postmaster-General, Secretary of the Navy, and Secretary of the Interior.

MEXICO.

Mexico is a republic, composed of twenty-seven states, a federal district and the Territory of Lower California. It is situated in the North Temperate and the Torrid Zone, and is about one-fourth the size of the United States.

The surface is a high plateau, fringed by a belt of low, narrow coast. Several ranges of the Rocky Mountain System, of which the Sierra Madre is the highest, extend through the country from north-west to south-east.

A chain of volcanoes crosses the highest part of the plateau. The summits of several of these are above the limit of perpetual snow. Vol. Popocatepetl is the highest mountain in Mexico, and, next to Mt. St. Elias, the highest in North America.

The lakes are small and unimportant. Most of them are situated in the Valley of Mexico.

The rivers are short, and, excepting the Rio Colorado and Rio Grande, not navigable above tide-water.

The climate is hot and pestilential along the narrow coast, but mild and healthful in the high interior. In going from Vera Cruz to the city of Mexico, one may, within a few hours, experience nearly every gradation of climate, and find the productions peculiar to each zone. There are but two seasons; the rainy, and the dry.

The vegetable productions comprise mahogany, rose-wood, mescal, various dye-woods, the agave, and cactus. Oranges, lemons, pine-apples, olives, and bananas are extensively cultivated. Tobacco, corn, sugar-cane, cocoa, beans, coffee, vanilla, and the indigo-plant are also grown.

The wild animals of Mexico comprise the grizzly bear, puma or Mexican lion, and coyote. Venomous reptiles and insects are numerous. Cattle, horses, and donkeys, in vast numbers, are the principal domestic animals.

The minerals include gold, silver, tin, quicksilver and marble.

The leading industries are agriculture, stock-raising, and mining. Coffee, sugar, cotton, cochineal, vanilla, metals, hides, and ornamental woods are exported. Great progress has been recently made in the building of railroads; but the unsettled condition of the government depresses every kind of industry.

The people consist chiefly of mixed races. About one-tenth are Creoles, or descendants of Spanish colonists. Spanish is the language of the country.

Mexico, the federal capital, is the metropolis. It is in the Valley of Mexico, elevation about 7,400 feet above sea-level.

Guadalajara and Puebla are manufacturing centers.

Vera Cruz is the chief Atlantic sea-port.

Acapulco and Guaymas are the principal ports on the Pacific Coast of Mexico.



MAP OF
MEXICO

- 1 Lower California
- 2 Sonora
- 3 Sinaloa
- 4 Chihuahua
- 5 Durango
- 6 Coahuila
- 7 Nuevo Leon
- 8 Tamaulipas
- 9 San Luis
- 10 Zacatecas
- 11 Jalisco
- 12 Aguascalientes
- 13 Guanajuato
- 14 Queretaro
- 15 Hidalgo
- 16 Vera Cruz
- 17 Puebla
- 18 Tlaxcala
- 19 Michoacan
- 20 Mexico
- 21 Colima
- 22 Guerrero
- 23 Oaxaca
- 24 Yucatan
- 25 Tabasco
- 26 Chiapas
- 27 Campeche
- 28 Quintana Roo

GUATEMALA

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CENTRAL AMERICA.

Central America forms the most southern part of North America. It comprises five republics, and the British colony of Balize.

The surface resembles that of Mexico, being a high plateau situated between low coasts. The climate, however, is hotter and more moist, and its vegetation more luxuriant.

It contains several volcanoes. Destructive earthquakes are of frequent occurrence.

The principal products are coffee, dye-woods and sugar. Gold, silver, and coal are found in the highlands.

The inhabitants are chiefly meztizos and Indians. The white people are mainly of Spanish descent. There are many European merchants and planters in Balize and Costa Rica. The language of the country is Spanish.

Guatemala, the largest city of Central America, is the chief commercial port.

The West Indies comprise two chains of islands, extending southeast from the coast of North America.

The Bahama Islands, about 600 in number, are low, coral formations. Their climate is warm and healthful.

The sponge fisheries constitute the chief industry.

Oranges, lemons and pine-apples are the principal fruits. Salt is obtained from the lagoons of Turk's Island, by evaporation.

Nassau, the capital and commercial port, is situated on Providence Island.

The Greater Antilles comprise the islands of Cuba, Hayti, Jamaica, and Porto Rico. Their surface is mountainous; their climate and productions are those of tropical regions. The population is made up of Spaniards, Creoles and Negroes.

Cuba exports sugar, molasses, coffee, fruits, tobacco and cigars. Its forests contain ebony, mahogany and rosewood.

Havana, the capital, is the center of a vast commerce. It is an important sugar market.

Matanzas also is an important city in Cuba.

The Island of Hayti comprises two independent republics, Hayti and Santo Domingo. The people and their rulers are Negroes.

Port au Prince is the capital of Hayti; and Santo Domingo of Santo Domingo.

Jamaica yields allspice, in addition to the products which are similar to those of the other islands. Rum is the principal export. Turtle-fishing is important.

Kingston is the capital.

Porto Rico contains many large and fertile plains.

The Lesser Antilles extend from Porto Rico to the mouth of the Orinoco River.

MAP OF
CENTRAL AMERICA
and the
WEST INDIES



SOUTH AMERICA.

South America was discovered by Columbus in 1498, near the mouth of the Orinoco. The early Spanish discoverers found an Indian village near Lake Maracaybo, built over the water on piles. As it reminded them of Venice, they called it Venezuela, which means Little Venice.

Balboa, in 1513, crossed the Isthmus, and was the first man who saw the Pacific Ocean from the coast of the Western Continent; but, long years before this, the ancient Peruvians had lived there. They had built strong cities, fine temples, great aqueducts, and splendid roads and bridges, ruins of which still remain. Peru was invaded by the Spaniards, under Pizarro, who cruelly treated the natives, destroying their cities and plundering their temples.

South America was thus conquered and settled by Spaniards, except Brazil, which was settled by Portuguese, and Guiana, which was settled by British, Dutch and French.

About 300 years afterward the people of the countries of South America (except Guiana) declared themselves independent of Spain and Portugal.

Simon Bolivar was the most distinguished general and patriot of South America. He was called the "Liberator," also the "Washington of South America."

South America is the Southern part of the Western Continent. Its area is nearly twice that of the United States. In shape it is a triangle, which tapers to a point toward the south. The coast line has but few indentations.

Like North America it has mountain ranges in the west and east and a vast plain in the center.

The Andean Plateau, the main axis of the continent, extends along the entire western coast. It supports parallel ranges, which constitute the Andean System. Its high peaks are always covered with snow. The highest measured peak is Mount Aconcagua, which is about 24,000 feet in height. The most celebrated volcano is Cotapaxi.

The plains of South America cover about one-half its area. The llanos of the Orinoco are treeless plains. During the rainy season they become a vast inland sea. With the disappearance of the water comes a profusion of tropical vegetation, which quickly withers under the intense heat of the sun.

The largest lakes in South America are Maracaybo and Titicaca. The latter is 12,000 feet above the sea-level.

The Amazon is the largest and one of the longest rivers in the world. Its course is nearly along the Equator. Its highest source is within 70 miles of the Pacific Ocean. At its mouth the river is nearly 200 miles wide. Its current and the freshness of its water are perceptible 200 miles out at sea.

The soil is fertile in nearly all parts of the continent. The southern part, however, is barren, rocky and desolate.

The climate along the sea-coast is generally warm, except in the south. In the interior of the lowland plains, the heat is almost intolerable.

The banks of the Amazon produce a wonderful variety of ornamental woods, such as mahogany, rosewood, vegetable-ivory, and tortoise-shell wood. The India rubber, cacao, and cocoa-palm trees are abundant.

The lowlands abound in wild grasses, and on the mountain slopes are found the cinchona-tree and many kinds of medicinal plants.

The chief cultivated plants are coffee, sugar-cane, cotton, tobacco, indigo, manioc, and spices.

Minerals.—South America is rich in minerals. A large part of the silver now in use in the world was obtained from the Andes Mountains. Gold is mined in Colombia and Brazil.

Industries.—The chief industries of the inhabitants of South America are herding, agriculture, and mining.

BRAZIL.

The Empire of Brazil, the largest country of South America, is the only monarchy in the New World.

It comprises the eastern plateau and the basins of the Amazon and the La Plata. The northern and western parts are low, swampy, and, during the rainy season, completely inundated.

Near the coast, the valleys are rich and well cultivated.

The greater part of the country has a tropical climate.

Coffee, cotton, sugar, tobacco, rice, grain, tropical fruits, nuts, and spices are raised in abundance.

The leading industries are cattle-raising and agriculture.

The natives live in the interior. The ruling people are the Portuguese, or their descendants.

Rio Janeiro, the capital, is the largest city in South America. Its chief exports are coffee and India rubber.

Bahia is the center of the diamond trade.

The Andes Republics comprise the United States of Colombia, Ecuador, Peru, Bolivia, and Chili occupy the mountainous region along the coast of the Pacific Ocean.

The coast is very steep, affording few harbors.

The surface is rugged. The high plateaus are barren, but the mountain sides and the valleys afford pasturage, and yield grain and other products.

This region is subject to earthquakes, and it contains some of the most celebrated volcanoes in the world.

The governments are republican in form, modeled after our own; but they are subject to frequent revolutions.

Bogota, although within four and a half degrees of the Equator, has a climate of perpetual spring, due to its altitude of nearly 9,000 feet. Its wet seasons are our spring and autumn; its dry seasons, our summer and winter. It is warmest in February, and coldest in December. Grain is sown twice a year. Most of the houses are built but one story high, owing to the frequency of earthquakes. There are, however, many large, splendid buildings.

Panama, on the isthmus, is the largest and most important city.

It is connected by railroad with Colon, or Aspinwall. Its climate is tropical and unhealthy.

Quito, the capital of Ecuador, is situated on a very high plateau, surrounded by volcanoes.

Guayaquil is the chief commercial city.

Lima, a few miles from the coast, is the capital of Peru. Its port is Callao.

Arequipa was several times destroyed by earthquakes.

La Paz is the capital and largest city of Bolivia.

CHILI.

Chili is the most powerful and enterprising of the Spanish-American republics.

It is the same in extent from north to south as the United States from east to west — about 2,600 miles.

It is situated on the western slope of the Andes and extends from the Bay of Arica to Cape Horn.

Along the coast are numerous islands, which are rich in guano and niter.

Its climate is temperate and moist.

The people are chiefly of Spanish origin. They are active, industrious and intelligent.

Santiago is the capital. Valparaiso is the largest commercial city on the west coast of South America.

The Argentine Republic is a broad and level country, comprising most of the pampas.

The people are engaged in herding and in preparing dried beef, hides, tallow and horns, for export.

Buenos Ayres, the capital and largest city, has an extensive commerce.

Paraguay and Uruguay resemble the Argentine Republic in surface, products and the occupations of the people.

Montevideo, the capital of Uruguay, is an important commercial city.

Asuncion is the capital of Paraguay.

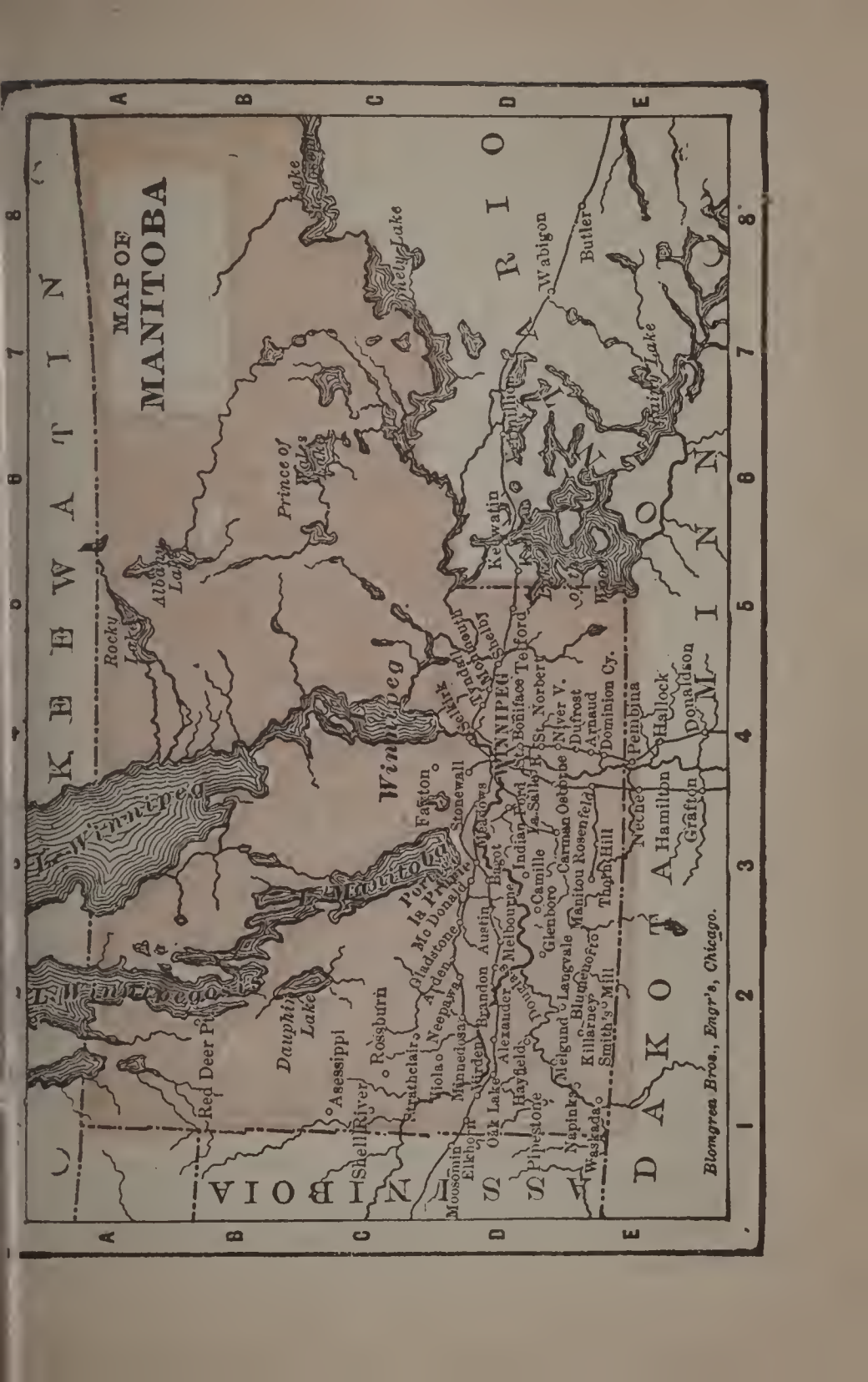
Venezuela lies almost entirely within the basin of the Orinoco. Its climate is tropical.

The people are engaged in cattle-raising and agriculture. Hides, meat, tallow, coffee, cocoa, cotton, sugar and dye-woods are exported.

Caracas is the capital. It has frequently suffered from earthquakes.

Guiana embraces three colonies—British, French and Dutch. Its products are like those of Venezuela.

Cayenne is the capital of French Guiana, Georgetown of British Guiana, and Paramaribo of Dutch Guiana.



DOMINION OF CANADA.

The Dominion of Canada embraces the provinces of British Columbia, Manitoba, Ontario, Quebec, New Brunswick, Nova Scotia and Prince Edward Island, besides several territories and districts. Its area is about equal to that of the United States.

The surface is mostly a vast plain, bordered by a high plateau in the west, on which stand the Rocky mountains and the Cascade range.

A chain of lakes extends from the mouth of the Mackenzie river to the Great Lakes. The St. Lawrence, Nelson and Mackenzie rivers drain the principal basins.

The climate of the Pacific Slope is mild, but elsewhere the winters are of great severity. The summers are short and in the southern provinces hot.

A belt of timber, mostly pine, extends from the Rocky mountains to the Atlantic ocean. The Pacific Slope is covered with forests of fir, the valley of the St. Lawrence contains growths of maple, oak and elm.

The central prairie regions are covered with luxuriant crops of wild grasses, and, where cultivated, yield large crops of grain.

The wild animals comprise the bison, bear, moose, wolf, beaver, otter, ermine, mink and marten, most of which are hunted for their skins. The coast waters abound in seal, cod and salmon.

The minerals comprise gold, silver and coal, which are mined in the west. Copper and iron are found near Lake Superior. Coal is mined in Nova Scotia also.

The chief industries in the eastern provinces are lumbering and fishing. The central regions are agricultural. The uninhabited regions of the north yield valuable furs in great quantities.

Most of the inhabitants are of English descent. In the eastern provinces, however, there are many descendants of the early French settlers.

The government of the dominion is vested in the Governor-General and Parliament. The Governor-General is appointed by the sovereign of Great Britain. Parliament consists of a Senate and a House of Commons. The members of the Senate are appointed by the Governor-General. The members of the House are elected by the people. Each province has a Lieutenant-Governor and a legislature.

Ottawa is the capital of the Dominion of Canada. It contains magnificent public buildings.

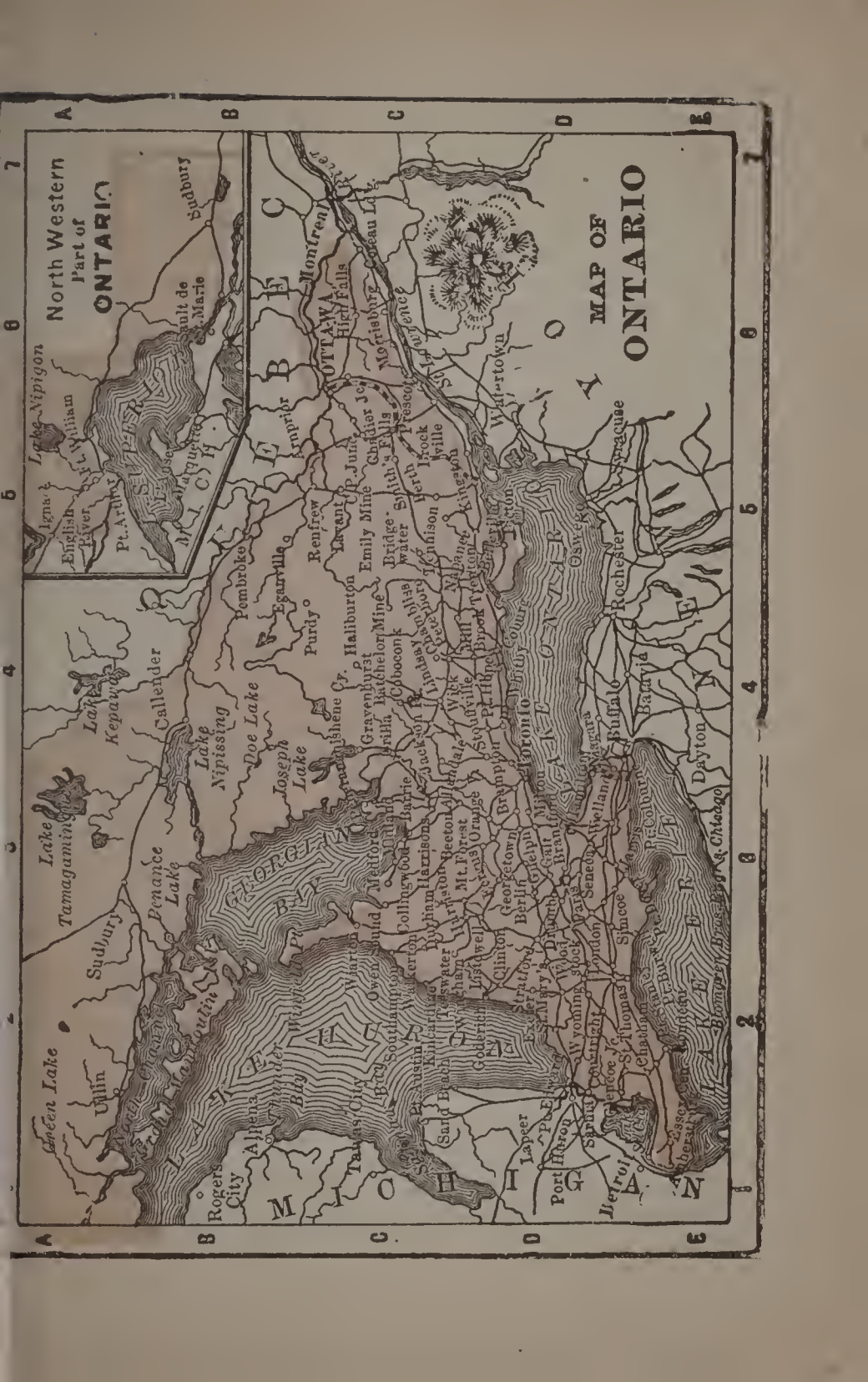
British Columbia, including Vancouver and other islands, is the largest and most mountainous province of the dominion. Its mines of gold and coal are valuable. Lumber, fish, and wool are exported.

Victoria, on Vancouver Island, is the capital and metropolis.

Manitoba is noted for wheat and furs. Steamers ply on the Red River of the North, and on Manitoba and Winnipeg lakes.

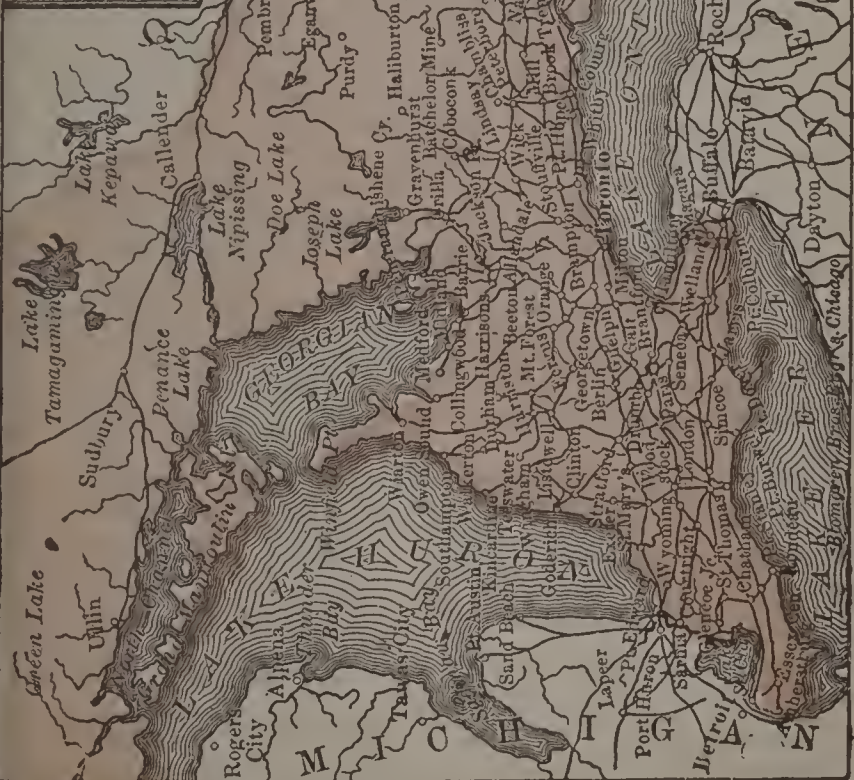
Winnipeg, the capital, is the agricultural and commercial center.

Ontario, the most important province, contains nearly one-



North Western
Part of
ONTARIO

**MAP OF
ONTARIO**



third the population of the dominion. Grain, fruit, and lumber are the principal products. Petroleum, copper, and iron are obtained near Lake Superior.

Toronto, the capital of the province, is noted for its manufactures and educational institutions. It is an important railway center and lake-port.

Hamilton, situated near the western extremity of Lake Ontario, is an important lake-port and manufacturing center.

Quebec is hilly. Its winters are extremely cold; its summers, warm, short, and foggy.

Its agricultural region is south of the St. Lawrence, and produces good crops of oats, potatoes, and hay. The most valuable export is lumber.

The people of this province are, chiefly, descendants of early French settlers.

Quebec, the capital, is the oldest city in the dominion. The heights, on which the upper portion of the city is built, are strongly fortified. The fortress of Quebec, next to that of Gibraltar, is considered the strongest in the world. It was, however, captured by General Wolfe during the French and Indian War. The principal business part of the city occupies the low ground.

Montreal, the metropolis, is noted for its magnificent cathedrals, and the tubular bridge across the St. Lawrence River.

New Brunswick is noted for lumber and ship-building.

Fredericton is the capital of New Brunswick.

St. John is the metropolis and largest port.

Nova Scotia has more sea-coast than any other province. Ship-building and the fisheries constitute the chief industries. Its coal-fields are extensive. Gold and gypsum are also mined.

Halifax, the capital, has an excellent harbor, and is the chief British naval station in North America.

Prince Edward Island, the smallest province, is the most densely populated. Agriculture and fishing are the chief occupations. Fish and eggs the principal exports.

Charlottetown is the capital.

Newfoundland is noted for its barren soil, cold climate and dense fogs.

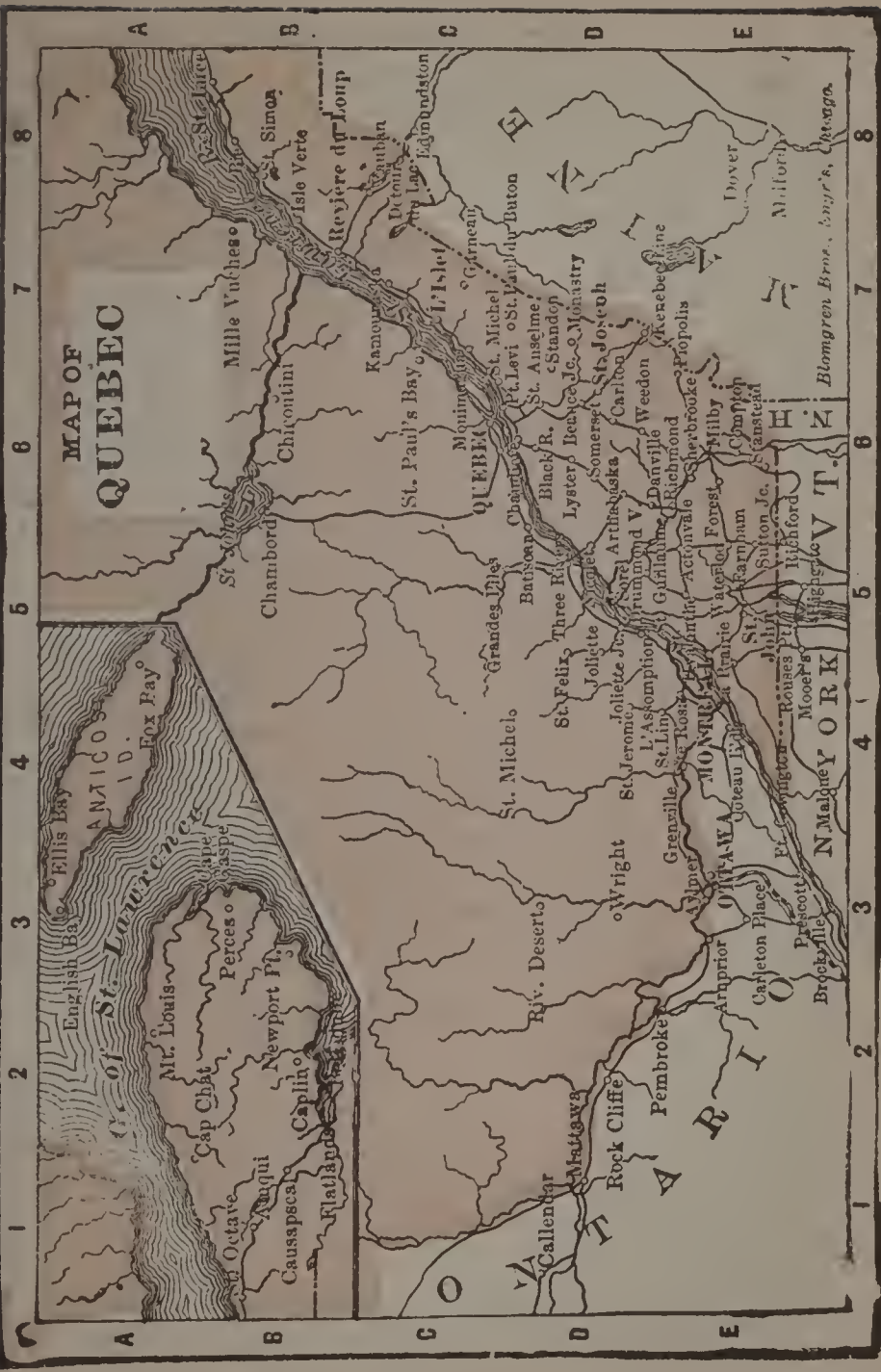
The dense fogs which prevail in this latitude are due to the meeting of the cold Arctic Current with the warm waters of the Gulf Stream. During the spring and summer, icebergs and pack-ice are brought down by the Arctic Current, and drift about until melted. It is for this reason that the steam-ship route between America and Great Britain is one of the most dangerous in the world.

Its cod, salmon and seal fisheries give employment to about nine-tenths of the inhabitants.

St. John's, the capital, is the most easterly city in North America, south of Greenland.

The Territories were formerly owned by the Hudson Bay Company.

MAP OF QUEBEC



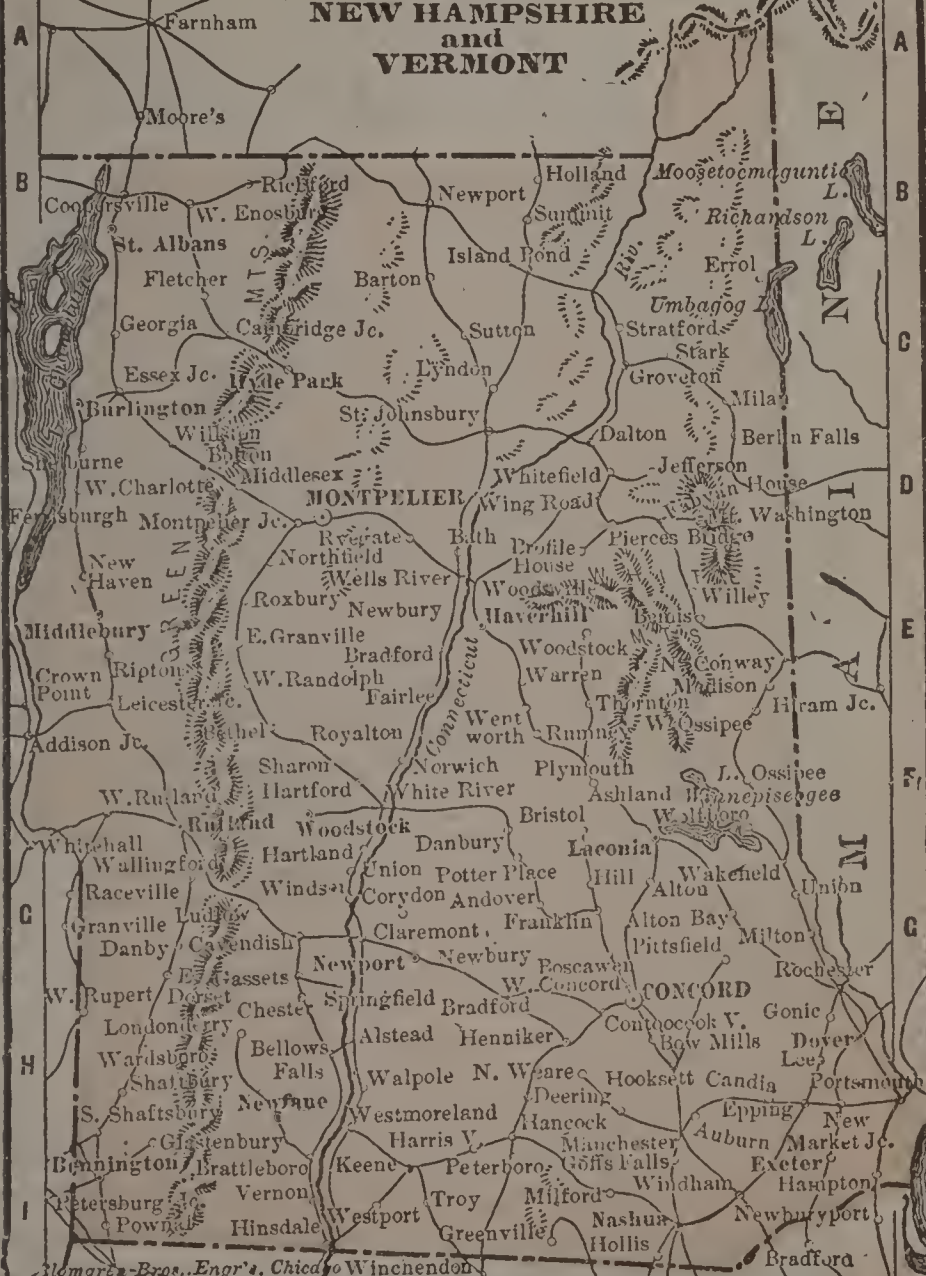
NEW HAMPSHIRE.

One of the thirteen original states. Named for Hampshire county, England, called the "Granite State." Ratified United States Constitution June 21, 1788. Union soldiers 33,937. Number counties 10; miles railroad 1,124. All elections Tuesday after first Monday in Nov., number senators 24, representatives 321, sessions of legislature biennial, in even-numbered years, meeting first Wednesday in June. Terms of senators and representatives 2 years each. Number electoral votes 4, congressmen 2, number voters 195,138. Paupers excluded from voting. Dartmouth College, at Hanover, founded 1769. Compulsory education law, common schools excellent, school age 5-15. Legal interest 6 percent, usury forfeits three times the excess. Population, census of 1890, 376,530. Extreme length N. and S. 181 miles, extreme width 92 miles, area 9,005 sq. miles—5,763,200 acres. Coast line 18 miles. Highest peak Mt. Washington. Largest lake, Winnipiseogee, 74 sq. miles. General elevation 1,200 ft. Isles of Shoals form part of state. The White Mountains occupy the northern part of the state with unsurpassed scenery. Soil rocky, with small fertile districts. Hay best crop; corn, wheat, oats and ordinary vegetables do fairly with close cultivation. Forests largely exhausted, except at the north. Cleared lands average \$16½ and woodland \$25 per acre. Mica quarried at Grafton, soapstone at Haverhill, Keene and Franconia, granite at Plymouth, Troy, Roxbury, Concord. State ranks high in cotton manufacturing. CLIMATE.—Winter averages 24, summer 69 deg. Extremes great in White Mountains. Summer short and hot, with violent storms. Rainfall 41 inches. Frost late in spring and early in fall. Winter begins in Nov., cold till May. Snow lies two-thirds of year in mountains, elsewhere 70 to 130 days. Health good. PRINCIPAL INDUSTRIES.—Agriculture, manufacture of cotton, woollens, lumber, leather, boots and shoes, etc. Quarrying mica, granite and soapstone. PRINCIPAL CITIES.—Census of 1890: Manchester, 43,983, Nashua, 19,266, Concord, (the capital), 16,948, Dover, 12,779, Portsmouth (chief harbor) 9,811. The harbor of the latter place, Great Bay, never freezes over.

Salaries of State Officers.

| | |
|---|------------------|
| Governor | \$1,000 |
| Secretary of State..... | \$800 and fees |
| Treasurer..... | 1,800 |
| Attorney General..... | 2,200 |
| Superintendent Public Institutions..... | 2,000 |
| Three Railroad Commissioners..... | \$2,000 to 2,500 |
| Adjutant General..... | 1,000 |
| Secretary Board of Agriculture..... | 1,000 |
| Librarian..... | 800 |
| Chief Justice..... | 2,900 |
| Six Associate Justices..... | 2,700 |

Map of NEW HAMPSHIRE and VERMONT



VERMONT.

First state to join the original 13. Called the "Green Mountain State." Active in war of 1812. Union soldiers furnished, 33,288. Number counties 14. Miles railroad 960. First railroad built from Bellows Falls to Burlington 1849. State elections biennial, first Tuesday in Sept.; number senators 30, representatives 240. Sessions of legislature biennial, in even-numbered years, meeting first Wednesday in Oct. Terms of senators and representatives, 2 years each. Number electoral votes 4, congressmen 2. Bribers excluded from voting. Colleges 2. School age 5-20. Legal interest rate 6 per cent., usury forfeits excessive interest. Population, census of 1890, 332,422. Length N. and S. 149 miles, width 34 to 52 miles, area 9,136 sq. miles, 5,847,040 acres. Highest Point (Green Mountains) about 4,600 ft. Green Mountains run N. and S. through the state and are 3,000 to 4,600 feet high. The surface is generally hilly. At least of mountains drained by the Connecticut, the only navigable river. Small streams abundant. Soil rocky but good in narrow strips on streams. Potatoes best crop. Corn, wheat, oats, hay, hops and buckwheat yield moderately if well attended. Forests remain to considerable extent, but are cut over or culled. Cleared land averages \$17.50 and forest land \$18 per acre. Dairying profitable. Manganese, copper, iron, gold, black, white, red and variegated marble and slate are found, the marble in great abundance. State ranks 1st in quarries, 4th in copper. Temperature ranges from 15 deg. below to 95 deg. above, but changes not sudden; winter averages 18 deg. to 33 deg. Summer averages 66 deg. to 75 deg. Summer short. Rainfall greatest at south and east, where it averages 43 inches; in other sections the average is 35 inches. Snows heavy. Frosts early in fall and late in spring. Snow lies 80 to 140 days. Health excellent. Death rate very low, less than $1\frac{1}{4}$ in the 100. Industries very varied, numbering 2,900. Principal ones, agriculture, dairying, manufacture of flour, furniture, leather, tin, iron and copper ware, and lumber, mining, quarrying and finishing marbles and stones, and maple sugar making.

PRINCIPAL CITIES.—Census of 1890: Burlington, 14,566; Rutland, 11,770; Brattleboro and Bellows Falls are important and thriving towns and seats of large industries.

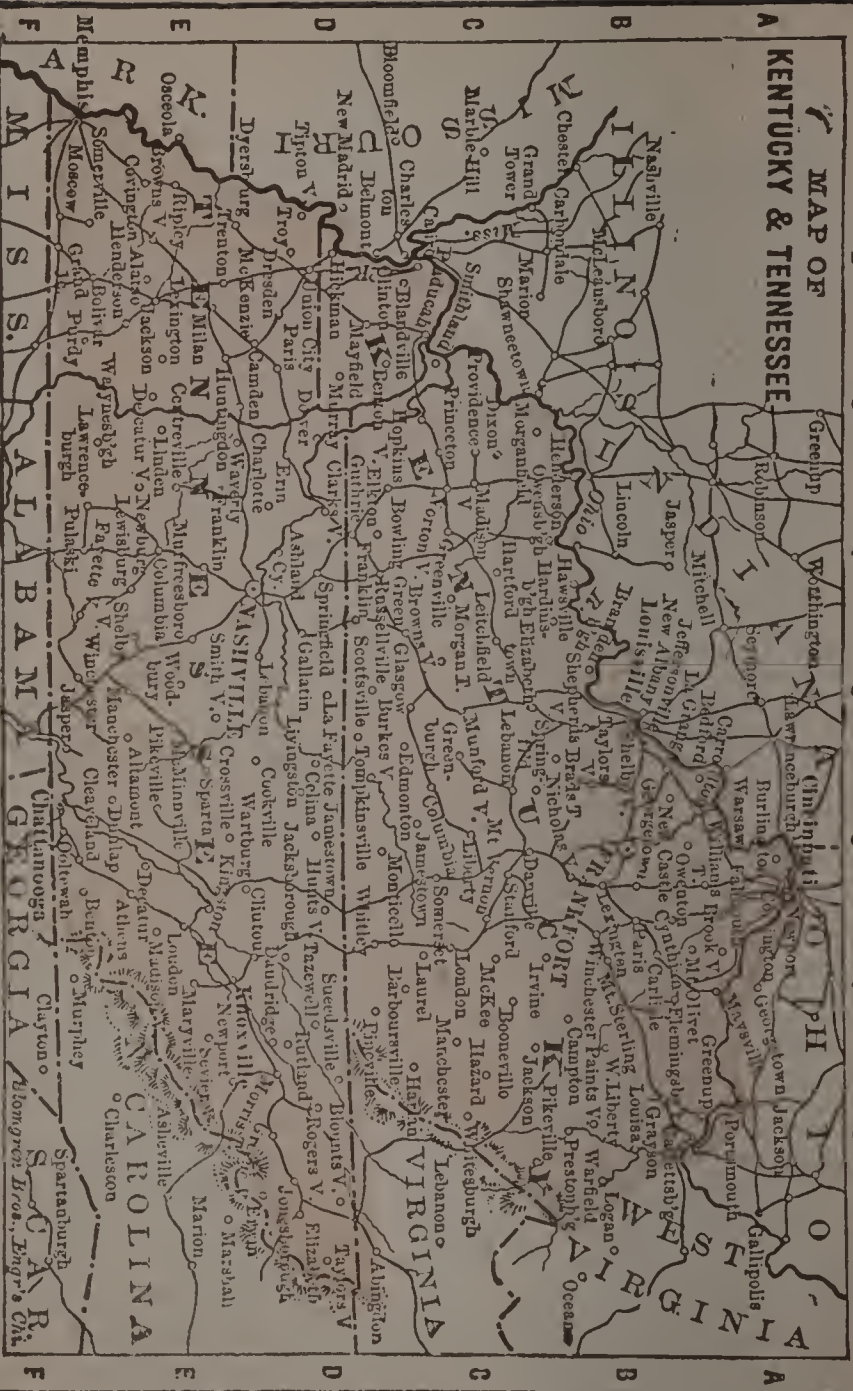
Salaries of State Officers.

Governor, \$1,000; Lieutenant Governor, \$6 a day; Secretary of State, \$1,700; Treasurer, \$1,700; Auditor, \$2,000; Inspector of Finances, \$500; Railroad Commissioner, \$500; Adjutant General, 750; Superintendent of Public Instruction, \$1,400; Chief Justice, \$2,500; Six Associated Justices, \$2,500; Senators and Representatives, \$3 a day; District Judge, \$3,500; Collector of Internal Revenue, \$2,650; Collector of Customs, \$1,000 and fees.

KENTUCKY.

Name Indian. Signifies dark and bloody ground, because the state was the hunting and battle ground of the tribes. Called "Corn-Cracker State." Louisville founded 1780. Admitted as a State June 1, 1792. State furnished 7,000 troops in war of 1812, and 13,700 in Mexican war. Won great credit in latter. Neutral at beginning of civil war. State the scene of continuous cavalry raids during the war, and some sharp battles at Perrysville, Richmond, etc. Put under martial law 1864. Civil government restored 1865. Union soldiers furnished, 75,760. Number counties, 118. State elections biennial, first Monday in August in odd-numbered years. Number senators 38, representatives 100, sessions of legislature biennial in even-numbered years, meeting last day of Dec., holds 60 days. Term of senators 4 years, of representatives 2 years. Number electoral votes 13, number congressmen 11, number voters 376,221. Bribers, robbers, and forgers excluded from voting. Number colleges 15, public school system framed 1838, good schools, school age 6-20 years. Legal interest 6%, by contract 10%, usury forfeits excess over 10%. Miles of railroad 2,777. Population census of 1890, 1,818,635. Number of slaves in 1860, 225,489. Extreme length E and W 350, width 179 miles, area 40,000 sq. miles, 25,600,000 acres. River frontage 832 miles, navigable water ways 4,120 miles. Soil fair, except in the famous "Bluegrass Region," extending for 40 or 50 miles around Lexington, and one of the most beautiful sections on the globe. Natural wonder Mammoth Cave, greatest in the world. Kentucky ranks high as an agricultural and stock state. Staple crops, corn, wheat, tobacco, oats, barley, hemp, rye and vegetables. Fruits do fairly. Famous for thoroughbred horses and cattle. Mules and hogs largely raised. At the East in the mountains are immense forests of virgin oak, poplar, ash, chestnut, elm, walnut, cucumber and other valuable timber trees. Coal, marbles, minerals, oil, stone, etc., also abound. Iron deposits of immense magnitude are known to exist. Cleared land averages \$20 and woodland \$5 per acre. The average of the former is raised materially by the high prices, often \$100 or more per acre, in the Bluegrass section. Mountain lands rich in timber and minerals and not without agricultural value, rate \$2 to \$5 per acre. The state ranks first in tobacco and fourth in malt and distilled liquors. Climate variable, favorable to health and agriculture, healthfulness not surpassed. Thermometer ranges from 5 deg. below zero to 98 above, rarely greater extremes are known. Temperature averages, summer 75 deg., winter 38 deg., rainfall 50 inches. Snows fall, but disappear in a few days. Sleighing only for a day or so. Winters moderately long. Malaria very rare, except on the Ohio and Mississippi Rivers. Chief Cities—Census of 1890: Louisville, 161,005; Frankfort (the capital) 8,500; Covington, 37,375. Lexington, former capital, founded 8776, pop. 22,355. Newport, connected with Covington by bridge, pop. 24,938. (Salaries of State Officers, page 439.)

MAP OF KENTUCKY & TENNESSEE



TENNESSEE.

"Big Bend State." First settled 1854. Became a part of North Carolina 1777. Organized as the State of Franklin 1785, but again became part of North Carolina 1788. Ceded to United States by North Carolina 1789. Admitted as state June 1, 1796. Capital, Nashville. First railroad part of N. C., 1853. Nashville to Bridgeport, miles of railroad in 1890, 2,648. Seceded June 8, 1861. Re-entered Union 1864. Number counties 96. State, congressional and presidential elections, Tuesday after first Monday in November, number senators 33, representatives 99, sessions biennial, in odd-numbered years, meeting first Monday in January; holds 75 days. Terms of senators and representatives 2 years each. Number electoral votes 12. Number of congressmen, 10. Legal interest 6 per cent, by contract any rate, usury forfeit, excess of interest and \$100 fine. Schools fair. Miles railroad 2,166. Population census of 1890, 1,767,518. Slaves 1860, 275,519. Extreme length E. and W. 430 miles, width 110 miles, area 41,750 sq. miles, 26,720,000 acres. Mountainous at E. where Apalachians separate state from North Carolina. Soil fair, except in central basin, where it is very productive. State abounds in coal, iron, fine marbles and building stones, copper and other minerals. Possesses one of the finest areas of forest in the Union. Principal timbers, walnut, oak, poplar, ash, hickory, etc. Staple products, mules, hogs, peanuts, corn, wheat, cotton, vegetables of all kinds, potatoes, tobacco, hemp, flax, broomcorn, iron, copper, coal, marbles, etc. Ranks second in peanuts and third in mules. Resources but little developed, 5,000 square miles of coal field, with 3 to 7 workable veins. Cleared land averages \$12.50, forest \$5 per acre. Grape growing pays. Climate one of healthiest in world. Mild and pleasant, and owing to varying elevation very diverse. Snow light, and lays briefly. Ice rarely more than a mere film in thickness. Average temperature winter 38 deg. Summer 75 deg. Extremes seldom occur. Rainfall 45 to 47 inches. Air bracing. Chief Cities.—Nashville, capital, 76,309; Memphis, 64,586; Chattanooga, 29,109; Jackson; 60,022; Knoxville, 22,447; Clarksville, 8,053. Industries chiefly agricultural, mining, lumbering and iron-making.

Salaries of State officers.

| | |
|---|-------------------|
| Governor | \$4,000 |
| Secretary of State..... | \$1,800, and fees |
| Treasurer..... | \$2,750 |
| Comptroller..... | 2,750 |
| Attorney General..... | 3,000 |
| Superintendent of Public Instruction..... | 1,800 |
| Adjutant General..... | 1,200 |
| Commissioner of Agriculture..... | 3,000 |

NORTH CAROLINA.

One of the 13 original states. Called "Old North State," "Fur State," and "State of Turpentine." Discovered by Lord Raleigh, 1584. Settled by English, 1650. State seceded May 21, 1861. Forts, etc., seized by state troops. Coast section scene of sharp fighting during civil war. State re-entered Union June, 1868. Number counties, 96, miles of railroad, 2,844. All elections Tuesday after first Monday in Nov. Number senators 56, representatives 120, sessions biennial, in odd numbered years, meeting Wednesday after first Monday in Jan., hold 60 days. Terms of senators and representatives 2 years each. No. electoral votes 11, No. congressmen 9. Convicts excluded from voting. Public school system adopted 1840, at present over 2,000 public schools in operation; school age 6-21; separate schools for whites and blacks. Legal interest rate 6 per cent, by contract 8, usury forfeits interest. Rate of tax less than 50c on \$100. Population, census of 1890—1,617,947. Number of slaves in 1860 331,059. Greatest length, E. and W. 453 miles, greatest width, 185 miles, area, 52,240 sq. miles, or 33,433,600 acres, less area water surface. Coast line 423 miles with many harbors. Much forest yet remains. Swamps extensive, most noted of them, the Great Dismal, north of Albemarle sound, contains 148,000 acres. Small streams abundant, water powers numerous; corn best crop tobacco largest product, other staples are orchard products, sweet potatoes, rice, wheat, oats, peanuts, cotton, hay and vegetables in the order named. North Carolina ranks first in tar and turpentine, second in copper, third in peanuts and tobacco, and fourth in rice. Has rich deposits of gold and the baser minerals. Stone, slate, coal, marble, mica. Excellent fisheries. Natural resources but slightly developed. Ample opportunities for homes, enterprise and capital. Cleared land averages \$10 and woodland \$5 per acre, and much of excellent quality in the market below this average. Stock thrives. Scenery varied, picturesque and grand. Wheat harvested June. Corn ripe Sept. Climate is varied, warm and moist in low sections; cool and dry in mountains, with all intermediate conditions. Average winter temperature, 49 deg., summer, 78 to 79 deg. Frosts light and seldom come till the end of fall. Rainfall, including some snow in mountains, 45 in. Health good. Chief Cities, census of 1890—Wilmington, 20,008; Raleigh (capital), 12,798; Asheville, 10,433, Winston, 7,988; Fayetteville, 4,220; New Berne, 7,832. Charlotte contains assay office, pop. 11,555. Industries—Agriculture principal occupation. Fishing, manufacture of turpentine and lumber, mining, etc. Number of different industries, 5,800. Number boats engaged in fisheries, about 3,000. Copper mined 1,640,000 lbs.

Salaries of State Officers.

Governor \$3,000, Secretary of State \$2,000, Treasurer \$3,000, Auditor \$1,500, Attorney General \$2,000, Superintendent of Public Instruction \$1,500, Adjutant General \$600, Commissioner of Agriculture \$1,200, State Librarian \$750, Chief Justice \$2,500.



MAP OF
NORTH & SOUTH
CAROLINA

1 2 3 4 5 6 7 8
A B C D E
NORTH CAROLINA
SOUTH CAROLINA
A B C D E
1 2 3 4 5 6 7 8
Blomgren Bros., Eng'rs, Chicago

SOUTH CAROLINA.

One of the thirteen original states, "Palmetto state." Revolutionary record, brilliant. English seized the territory, but ~~were cap~~ shed at Cowpens and Eutaw Springs and penned up in Charleston. First railroad in United States using American locomotive, 1833. First state to secede, Nov., 1860. Sumter bombarded April 12-13, 1861. Ordinance of secession repealed Sept. 1865, and slavery abolished. Re-entered Union June 1868. No. counties 34, miles railroad 2,129. State, congressional and presidential elections, Tuesday after first Monday in Nov. State senators 35, representatives 124, sessions annual, meeting fourth Tuesday in Nov. Term of senators 4 years, representatives 2 years. No. electoral votes 9, No. congressmen 7. Insane, inmates of asylums, alms-houses and prisons, United States army and duelists excluded from voting. No. colleges 9, school age 6-16, school system fair. Legal int. 7%, by contract, any rate. Population, census of 1890—1,151,149. Number slaves in 1860, 402,406. Greatest length 280 miles, greatest width 210 miles, area 30,170 sq. miles, or 19,308,800 acres, coast line 212 miles. Principal river Savannah, navigable 130 miles. Magnificent water power, undeveloped. Soil from medium to very rich. Forests extensive and valuable. Land cleared or uncleared, averages \$7 per acre. Rice and cotton, best crops. All other cereals as well as vegetables, fruits, grasses and fiber crops grow well. Phosphate beds enormous, gold, mica, marbles of all colors, building stones found in large quantities. Turpentine, tar, lumber and oysters largely produced. Stock thrives. Gold mines in Abbeville, Edgefield and Union counties, first mint deposits, \$3,500, in 1827. White and variegated marbles found in Spartanburg and Laurens counties. Climate—Temp. ranges 15 to 96 deg. F. Averages, summer 82 deg., winter 51. Average rainfall 48 inches, decreasing to the south. Health good. Epidemics rare and confined to seaports. Resort for consumptives. Changes slight and infrequent, frosts rare. Chief Cities, census of 1890—Charleston, 54,592, port of entry, seat of a Catholic bishop; Columbia, 14,508; Greenville, 8,340; Spartanburg, 5,532. United States customs districts at Beaufort, Charleston and Georgetown. Capital, Columbia. Principal Industries—Agriculture, mining, fishing, quarrying, lumbering, turpentine and tar making and phosphate digging.

SALARIES OF STATE OFFICERS.

Governor \$3,500, Lieutenant Governor \$1,000, Secretary of State \$2,100, Treasurer \$2,100, Comptroller General \$2,100, Attorney General \$2,100, Superintendent of Public Instruction \$2,100, Commissioner of Agriculture \$2,100, Adjutant and Inspector General \$1,500, Chief Justice \$4,000, Associate Justices \$3,500, Clerk of Supreme Court \$1,000, Senators and Representatives \$5 per day, mileage 10 cents; District Judge \$3,500, Collector of Internal Revenue \$3,250.

VIRGINIA.

One of the thirteen original states. Called the "Old Dominion," and "The Mother of Presidents." First English settlement in America, 1607. Active in Revolution and subsequent steps toward founding the Union, Virginia won the title of "First of the States." British burnt Norfolk 1779, and Richmond 1781. Yorktown surrendered Oct., 1781, practically vanquishing England. State seceded May 7, 1861, and capital of Confederacy moved to Richmond. Scene of gigantic energies of the war. Bull Run, the Wilderness, Cold Harbor, Fredericksburg, Port Republic and many other famous battles were fought on Virginia soil. Lee surrendered at Appomattox April 9, 1865, ending the war. State returned to the Union Jan. 26, 1870. Number counties, 100. Sessions of legislature biennial, in odd-numbered years, meeting first Wednesday in December; holds 90 days. Term of senators 90 days, representatives 2 years. Number electoral votes 12, congressmen 10. Lunatics, idiots, convicts, duelists, United States army and non-taxpayers of capitation tax excluded from voting. Number colleges 7, schools 4,502, school age 5-21, school system fair. Legal interest 6 per cent, by contract 3 per cent, usury forfeits all over 6 per cent. Miles of railroad, 2,203. Population, census of 1890, 1,655,980. Slaves, 1860, 490,865. Greatest length east and west, 445 miles, greatest width, 190 miles, area 40,125 sq. miles, 25,680,000 acres. Coast line, 130 miles, tidal frontage, 1,556 miles. The state is rich in iron, gold, salt, coal, marble, slate, zinc, lead, stone, timber and other natural resources as yet little developed. Much good farming land is untitled. Cleared land averages \$10 and woodland \$6 to \$7 per acre. The opportunities for homes and enterprise are inviting. All cereals, tobacco, peanuts (state ranks first in this crop and second in tobacco), fruits, grapes, and vegetables are extensively raised. Stock thrives. Climate varies, is genial and healthful, cool in mountains and warm in lowlands in summer. Winters are seldom severe. Winter averages 44, summer 78 deg. Rainfall, including snow, averages 44 in., being heaviest on the coast. Chief Cities—Richmond (capital), 63,600; pop. of Norfolk, 21,966; Petersburg, 21,656; Hampton Roads, one of best harbors on coast. Seven ports of entry. Industries—Half population engaged in agriculture, balance in quarrying, ship-building, lumbering, the trades, iron working, meat packing, tanning.

Salaries of State Officers.

Governor \$5,000, Lieutenant Governor \$900, Secretary of State \$2,000, Treasurer \$2,000, Auditor \$3,000, Secretary Auditor \$2,000, Attorney General \$2,500, Superintendent of Public Instruction \$2,500, Adjutant General \$600, Commissioner of Agriculture \$1,500, Superintendent of Land Office \$1,300, President of Supreme Court \$3,250, four Judges of Supreme Court \$3,000, two District Judges \$3,500, Senators and Representatives \$540 per year.

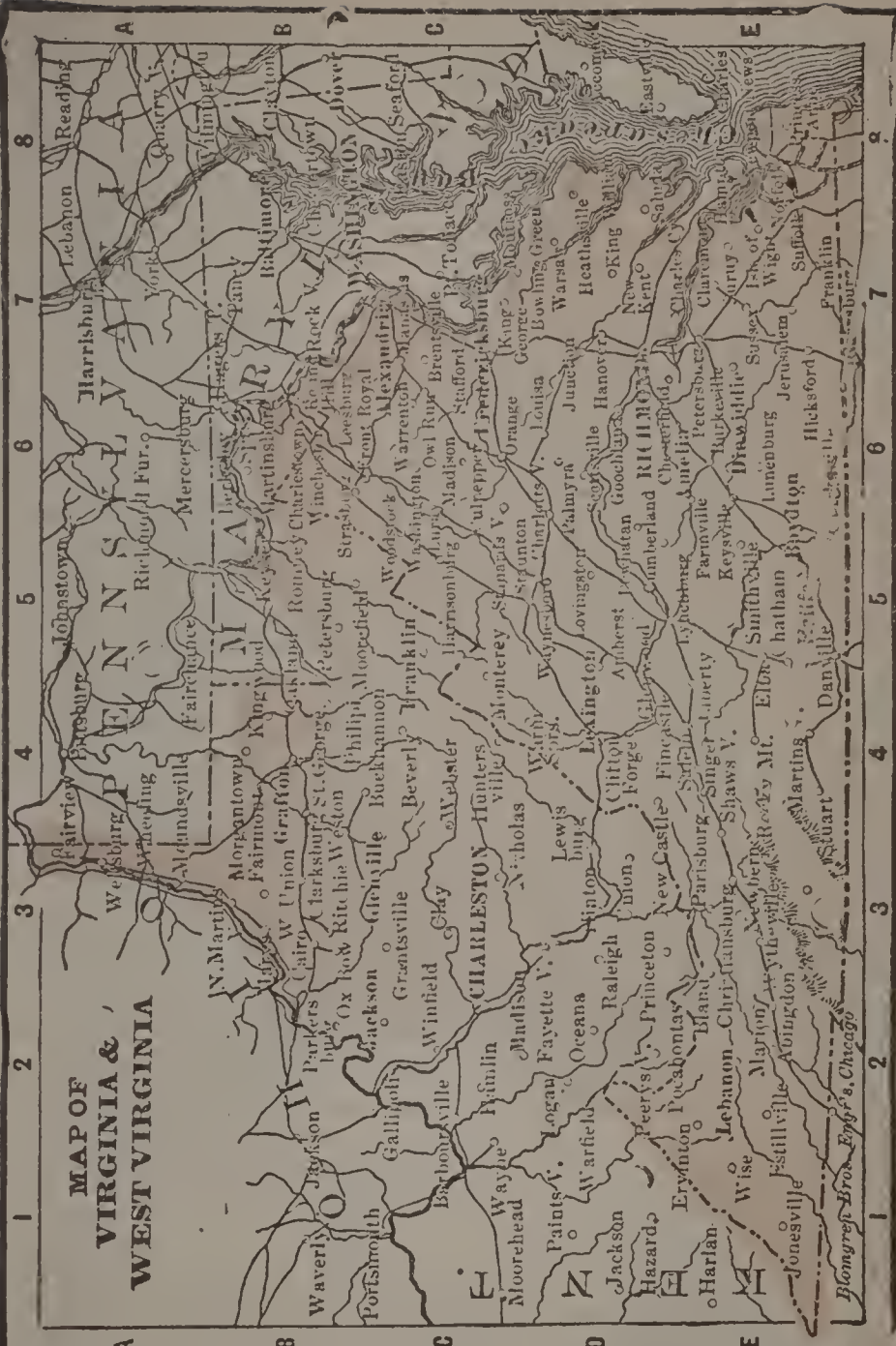
WEST VIRGINIA.

Originally part of Virginia. Called "Pan Handle State." History up to 1861 same as that of Virginia. Refused to secede Apr. 22, 1861. F. H. Pierrepont elected governor June 20, 1861. Admitted as state June 20, 1863, and Wheeling made the capital. Capital changed to Charleston 1870. Moved again to Wheeling 1875. and to Charleston again in 1884. Union soldiers furnished 32,068. State advanced rapidly in wealth. Number counties 54. Miles railroad 1,328. Governor and state officers elected quadrennially, and legislature every two years on second Tuesday in Oct.; number senators 25, representatives 65. Sessions biennial in odd-numbered years, holding 45 days. Terms of senators 4 years, representatives 2 years. Number electoral votes 6, congressmen 4. number voters 169,161, native white 123,569, colored 6,384. Insane paupers and convicts not voting. Flourishing free school system, school age 6-21. Legal interest 6 per cent, by contract 6, usury forfeits excess of interest. Population, census of 1890, 762,794. Number of slaves in 1860, 18,371. Topography, area, Soil Products, Etc.—Length N. and S. 241 miles, greatest width 158 miles. area 24,645 sq. miles, 15,772,800 acres. Surface mountainous with fertile valleys, the Alleghenys principal range. Some high peaks. Scenery fine and much visited by tourists. Western part hilly but gradually descends from 2,500 feet above the sea toward the Ohio river, where the elevation is 800 to 900 feet. Much of the state is virgin forest densely clothed with oak, walnut, poplar, ash and other timber trees. Mine al springs abound. The soil, where not mountainous, is excellent. Mineral wealth, including coal, oil, iron, salt is prodigal. Staple products include the minerals named, sheep, hogs, tobacco, wheat, corn, dairy products, fruit, wine, lumber. Petroleum extensively produced. The state ranks fifth in salt and coal, seventh in buckwheat, iron and steel. Cleared land averages \$22.50. Climate moderate, average temperature, winter 30 deg., summer 70 deg. Elevation reduces heat which in the valleys averages 76 to 78 deg. Average rainfall 42 to 45 inches. Health is excellent. Chief Cities, Census of 1891—Wheeling, 35,052; Charleston, capital, 7,257; Parkersburg, 9,389; Martinsburg, 7,207. Chief Industries—Sixty per cent of laborers engaged in agriculture, balance in mining, iron making, lumbering, manufacturing, etc.

SALARIES OF STATE OFFICERS.

Governor \$2,700, Secretary of State \$1,000 and fees, Treasurer \$1,400, Auditor \$2,000 and fees. Superintendent of Free Schools \$1,500, Attorney General \$1,000, Presiding Judge of Supreme Court \$2,250, Associate Judges \$2,250, Senators and Representatives \$1 per day, mileage 10 cents; District Judge \$3,500, two Collectors of Internal Revenue \$2,875.

MAP OF VIRGINIA & WEST VIRGINIA



Blomberg Bros. Engrs. & Chicago

ALASKA.

Discovered by Vitus Behring 1741, and became Russian territory by right of discovery. Purchased by the United States for \$7,200,000, 1867, as a deed of gratitude to Russia for her course in civil war. Has paid 5 per cent on investment ever since, and promises to become the source of enormous mineral, fur, agricultural and timber wealth. Governor appointed by the president of the United States.

Population—Whites, 8,000; Indians, estimated, Innuits 18,000, Aleutian 2,200, Ninneh 4,000, Thlinket 7,000, Hyda 800.

Extreme length north and south 1,200 miles, width 800 miles, area (estimtd.) 514,760 sq. miles. Yukon, chief river, 80 miles wide at mouth, navigable 840 miles, length about 1,300 miles; coast line 5,000 miles. Fertile land. Good oats, barley and root crops are raised without difficulty. Rich grass land in the valley of Yukon. Timber abundant. Yellow cedar best, being of great value for boat-building. Berries plentiful. Fine quality of white marble is on Lynn Channel. Coal, amber and lignite on Aleutian Islands, the best coal being on Cook's Inlet. Gold, silver, copper, cinnabar and iron are found: sulphur abundant. Noted for fur-bearing animals, the chief of which are beaver, ermine, fox, marten, otter, squirrel and wolf. The main revenue is the fur seal, taking of which is regulated by law. The walrus is of value in furnishing ivory and oil. Whales, cod, herring and halibut and salmon are abundant.

Climate—Pacific coast modified by Pacific Gulf Stream and long summer days. Temperature at Sitka averages, winter about that of Washington, D. C. Rainfall copious and foggy weather common on coasts and islands. Sitka one of the rainiest places in the world outside the tropics; annual precipitation 65 to 90 inches; rainy days 200 to 285 in year.

Chief Cities—Sitka, seat of Bishop of Greek church, and headquarters of governor, pop. 995, white 163, creole 219. Thlinket 613. Fort St. Nicholas, Cook's Inlet, Fort St. Michael and Norton's Sound are other main settlements. Harbors at Port Clarence, Michaelooski and Captain's Harbor.

Industries—Fishing, canning, trapping and mining.

SALARIES OF TERRITORIAL OFFICERS.

| | |
|---|------------------|
| Governor | \$3,000 |
| District Judge..... | 3,000 |
| Clerk of District Court and ex-officio Secretary and Treasurer..... | 2,500 |
| District Attorney..... | 2,500 |
| Marshal and Surveyor General..... | 2,500 |
| Collector of Customs..... | \$2,500 and fees |
| Three Deputy Collectors. | 1,500 |
| One Deputy Collector..... | 1,200 |
| Two Inspectors, per day..... | 3 |



MAP OF
ALASKA

Unalakleet
18
Islands of
Four Mountains
0 100
Miles

Blomgren Bros., Eng'rs, Chicago.

100 200 Miles

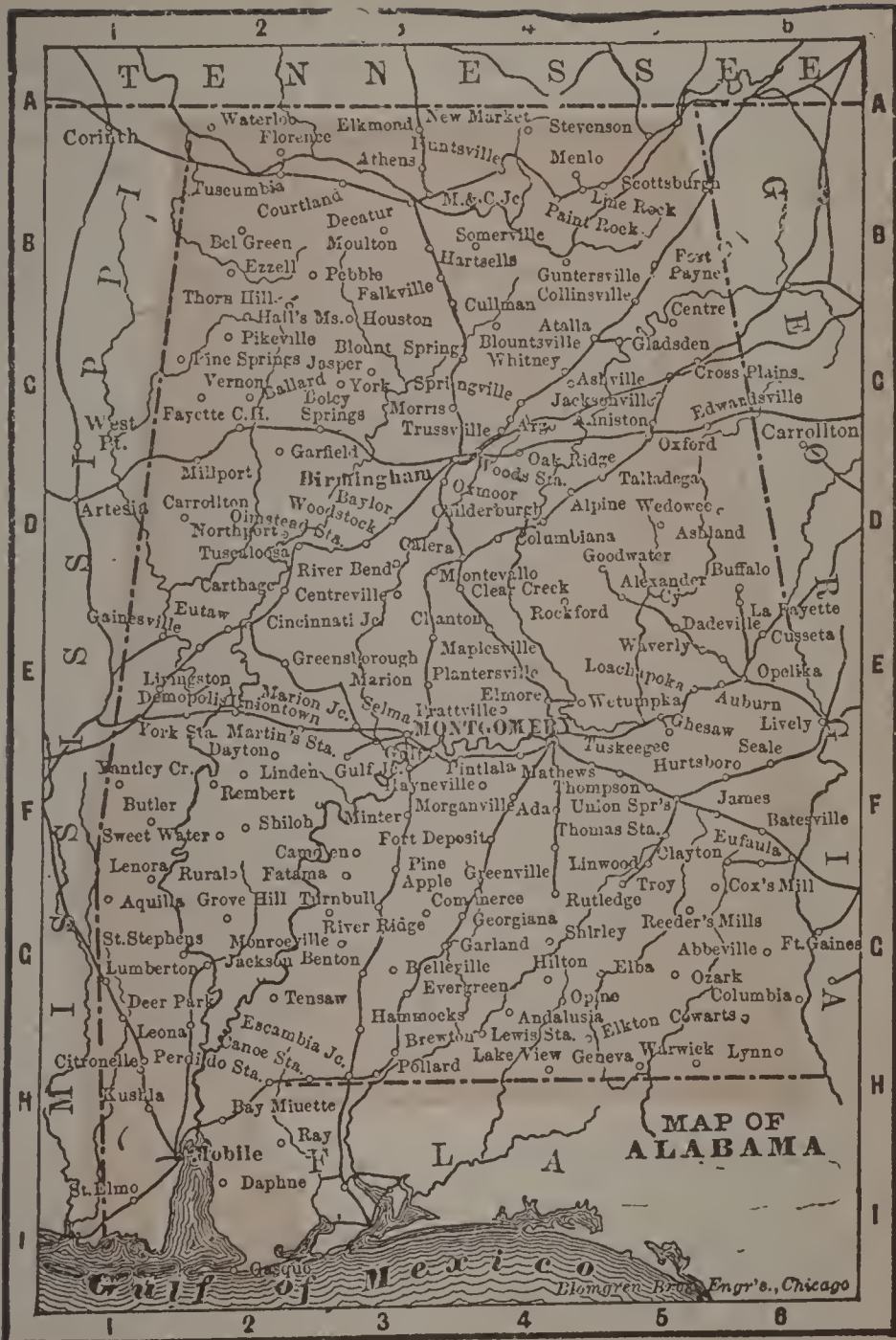
Unalakleet
18
Islands of
Four Mountains

ALABAMA.

Name Indian, means "We rest here." Mobile founded by French 1702. Admitted to Union Dec. 14, 1819. Seceded Jan. 11, 1861. Montgomery made capital of Confederacy Feb. 4, 1861. Subsequently removed to Richmond, Va. State re-entered Union July 14. Number counties 66, miles of railroad 3,146. State elections biennial first Monday in Aug., number senators 33, representatives 100, sessions of legislature biennial in even-numbered years, meetings Tuesday after second Monday in Nov., and holding 50 days, term of senators 4 years, of representatives 2 years. Number of electoral votes 10, congressmen 7. Indians, idiots, conv. cts of crime excluded from voting. Number colleges 4, school age 7-21, schools good. Legal interest 8 per cent, usury forfeits entire interest. POPULATION, census of 1890.--1,513,017. Number of slaves in 1860, 435,080. Length N. and S. 330 miles, width averages 154 miles, area 50,722 sq. miles, 32,985,600 acres. Surface at N. E. rugged, extending into Allegheny mountains, gradually descends, forming rolling prairies at center of state and flat low stretches at the south. Sea coast 68 miles. Mobile bay best harbor on the gulf, 1,600 miles of navigable waterways. Has fair soil and is enormously rich in coal, iron, lime and sandstone, timber and various minerals. Middle section soil fertile and varied. Coast region sandy, but by proper cultivation prolific. Vegetable farming near Mobile very successful. Cotton, mules, iron, coal, sugar, rice, tobacco, hay, oats, corn, staple products. Fruits are a good crop. Much forest remains. Cleared land averages \$7, and woodland \$4 per acre. State ranks fourth in cotton, fifth in mules and molasses, sixth in iron ore and sugar, seventh in rice. CLIMATE.--Temperature mild, cold at north, warm at south, average winter 47 deg., summer 81 deg., July hottest month, range of thermometer 20 to 95 deg., sometimes for a day reaching 102 deg. Rain-fall 50 inches. Snow or ice very rare. Trees bloom in Feb. CHIEF CITIES, census of 1890.--Mobile, 31,822; Birmingham, 26,241; Montgomery (the capital), 21,790; Selma, 7,626; Huntsville, 4,635. LEADING INDUSTRIES.--Agriculture and kindred pursuits, mining, iron making, lumbering, etc. Number industries 2,070.

Salaries of State Officers.

| | |
|---|------------------|
| Governor..... | \$3,000 |
| Secretary of State..... | 1,800 |
| Treasurer..... | 2,150 |
| Auditor..... | 1,800 |
| Attorney General..... | 1,500 |
| Superintendent of Public Instruction..... | 2,250 |
| Librarian..... | 1,500 |
| Three Railroad Commissioners..... | \$2,000 to 3,500 |
| Chief Justice..... | 3,000 |
| Two Associate Justices..... | 3,000 |

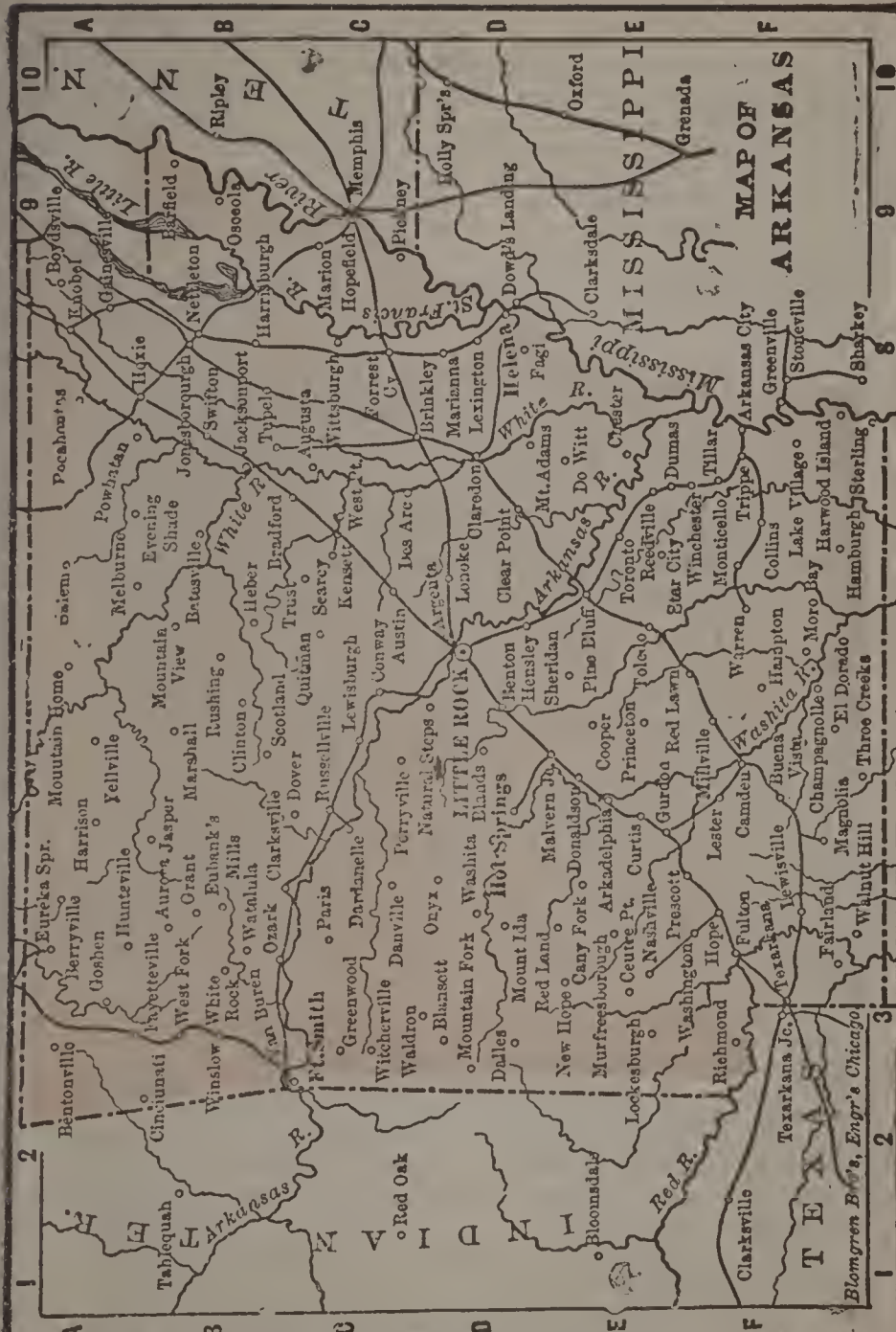


ARKANSAS.

"Bear State." Settled 1685. Arkansas territory organized 1819. Admitted as a state June 15, 1836. Slavery acknowledged. Seceded May 6, 1861. Considerable fighting during the war, but no great battles. Re-entered Union 1868. Number counties 75. Miles railroad, 2,141. State elections biennial, in even-numbered years first Monday in Sept.; number senators, 31, representatives 94, sessions of legislature biennial, in odd-numbered years, meeting second Monday in Jan., holding 60 days, term of senators 4 years, representatives 2 years. Number of electoral votes 7, congressmen 5. Idiots, Indians, convicts not voting. Number colleges 5, school system progressive, school age 6-21. Legal interest rate 6 per cent, by contract 10 per cent, usury forfeits principal and interest. Population, census of 1890—1,128,179. Length N. and S. 240 miles, average breadth 212 miles, area 53,845 sq. miles, 44,460,800 acres. The scenery varied and charming. Hot Springs (temp. 140 deg.) great natural wonder and famous for medicinal properties. Soil varies, but greater portion exceptionally rich and suited to all crops, especially fruits, berries and gardening. State especially favorable to agriculture. Magnificently timbered. Pine, oak, cypress, cedar, hickory, waln., linn. locust chief growth. Cleared land averages \$10, and woodland \$3 per acre. Coal exists on the Ash river, iron in the Ozarks, salt near Ouachita. Oilstone near Hot Springs. kaolin in Pulaski county. Staple products, corn, wheat, cotton, tobacco, oats, sweet potatoes, mules, tar, turpentine, lumber, etc. Climate—Genial. Temp. ranges 15 deg. to 95 deg., on rare occasions going to 100 deg. Averages winter, 45 deg.; summer 80 deg. Rainfall 44 inches, heaviest in S. E., lightest in N. W. Health unsurpassed, especially in N. W. Chief Cities, census of 1890—Little Rock, the capital, 26,500; Helena, 5,185; Texarkana, 3,486. Industries—2,100 in number. Chiefly agricultural.

SALARIES OF STATE OFFICERS.

| | |
|---------------------------------------|-----------------|
| Governor..... | \$3,500 |
| Secretary of State..... | 1,800 |
| Treasurer..... | 2,250 |
| Auditor..... | 2,250 |
| Attorney General..... | 1,500 |
| Superintendent of Public Inst..... | 1,600 |
| Land Commissioner..... | 1,800 |
| Chief Justice..... | 3,000 |
| Two associate Justices..... | 3,000 |
| Senators and Representatives..... | \$6 a day. |
| Two District Judges..... | 3,500 |
| District Attorney..... | \$200 and fees. |
| Two Assistant District Attorneys..... | \$1,200, 1,000 |



MAP OF ARKANSAS

Blomgren Bros, Engrs Chicago

ARIZONA.

Explored 1526. Mineral wealth found, no important settlements effected because of hostile natives. Organized as territory, Feb. 24, 1863. Number counties 11. Miles railroad 1,095. All elections Tuesday after first Monday in Nov; number senators, 12; representatives, 24; sessions of legislature biennial, in even-numbered years, meeting first Monday in Jan., holds 60 days; terms of senators and representatives, 2 years each. School age, 6-21 years. Legal interest rate, 10 per cent., by contract, any rate; no penalty for usury. School endowment in lands reserved very large.

Population, census 1890, —.... Extreme length north and south, 378 miles, width, 339 miles, area, 113,929 sq. miles, 72,-914,560 acres. Volcanic peaks reach an altitude of 10,500 feet. Southern portion a plain, dipping occasionally below sea level, and rising only to a very moderate elevation (200 to 600 feet usually), mountains numerous, highest point San Francisco, 11,056 feet. Colorado river navigable 620 miles. Flows between perpendicular walls cut in solid rock in places 7,000 feet high. Agriculture possible only in the valleys or where irrigation is practicable. Soil in valleys and bottoms very rich and prolific. Wheat, barley, potatoes, hay, corn, onions are staple field crops, corn follows wheat or barley, giving two crops yearly. Oranges and all semi-tropical fruits do well where water is obtainable. Cattle raising extremely profitable. Desert tracts of considerable area are found. Timber grows on the mountains, foot-hills and along the streams. The varieties include pine and cedar on mountains, cotton-wood, walnut and cherry on streams. Size of trees fair and quantity large. Abundant mineral wealth exists, which can be developed with profit, owing to completion of railways. Nearly all mountain ranges contain gold, silver, copper and lead. Superior quality of lime found near Preston and Tucson, beds of gypsum in San Pedro valley, remarkable deposits of pure transparent salt near Callville. Territory ranks second in production of silver.

Climate exceptionally healthful, and generally mild, except in mountains. temperature averages 38 deg. winter, 73 summer, much warmer at south, the thermometer reaching occasionally 115, and rarely falling below 35 deg. in winter. In central portion heat seldom exceeds 88 deg. to 90 deg., snow in mountains, but melts soon. Rainfall on Gila 6 inches, in foot-hills 28 inches. Heaviest in July and August.

CHIEF CITIES.—Census of 1890: Tucson, pop. 5,095; Prescott, the capital, pop. 3,000.

LEADING INDUSTRIES.—Mining, grazing, agriculture, lumbering, smelting, etc.

(Salaries of State Officers page 439.)



**MAP OF
ARIZONA**

Blomgren Bros. Engr's Chicago

CALIFORNIA.

"Golden State." First settled at San Diego 1768. Gold discovered 1848. Rush of immigration set in 1849. State constitution, without the preliminary of a territorial organization, framed Sept. 1849. Admitted as a state Sept. 9, 1850. Number counties 53. Miles railroad 4,202. Governor and state officers elected quadrennially and legislature every two years; number senators 40, representatives 80, sessions of legislature biennial in odd-numbered years, meeting 1st Monday after Jan. 1, holds 60 days; term of senators 4, representatives 2 years. Number electoral votes 8, congressmen 6, white voters 262,583. Idiots, Indians, convicts and Chinese excluded from voting. School system very fair; school age 5-17. Legal interest 7 per cent, by contract any rate. Population, according to census of 1890, 1,208,120. Extreme length N. and S. 725 miles, width 330 miles, area 155,980 sq. miles, 99,827,200 acres. Coast line over 800 miles. San Francisco Bay, 40 miles long 9 miles wide, magnificent harbor. Yosemite in the Sierras, one of the greatest natural wonders of the world and the greatest marvel of the state, where scenery is always grand. Mt. Whitney 15,000, highest peak. Very rich agriculturally and in minerals. Soil warm, genial and rich. Two crops may be raised in season. Irrigation necessary in parts and almost always desirable. Wheat most valuable crop, all cereals, root crops and grasses do well, corn, barley, grapes, fruit, nuts, silk, hops and oats staples. Mineral deposits include gold, silver, iron, copper, mercury, coal, stones, salt, soda, etc. Ranks high as a fruit growing state, fruits of temperate climates, sub-tropical fruits and nuts, grapes N. to 41 deg., olives, etc., grow to great perfection. Fine sheep raising country. Ranks first in barley, grape culture, sheep, gold and quicksilver, third in hops, fifth in wheat and salt. Noble forests of redwood and other valuable growths. Land runs from \$1.25 to several hundred dollars per acre. Improved land averages \$30, unimproved \$7.50 per acre. It is the paradise of the small farmer. Plenty of room for men with a little something to begin on.

Climate varies with elevation and latitude. Mild and pleasant on coast. Average temperature at San Francisco in summer 62 deg., winter 50 deg. Warmer in interior, reaching at times 100 deg. Rainfall variable, from 7 to 50 inches at San Francisco. Average at S. 10 inches. Melting snow from mountains replaces rainfall. Frosts rare.

Chief Cities, census of 1890--San Francisco, pop. 297,990; port of entry, regular line of steamers to Australia, Panama, Mexico, China and Japan; Sacramento, capital, 26,272; Oakland, 48,590; San Jose, 18,027; Stockton, 14,376; Los Angeles, 50,394; U. S. navy yard at San Pueblo Bay; Fresno, 10,796; Napa City, 4,387; San Diego, 16,153; Santa Rosa, 5,216; Vallejo, 5,004.

Leading Industries--Agriculture, stock raising, fruit culture, mining, lumbering, etc.

(Salaries of State Officers page 439.)



O R E G O N

NEVADA

LOWER CAL.

MAP OF CALIFORNIA

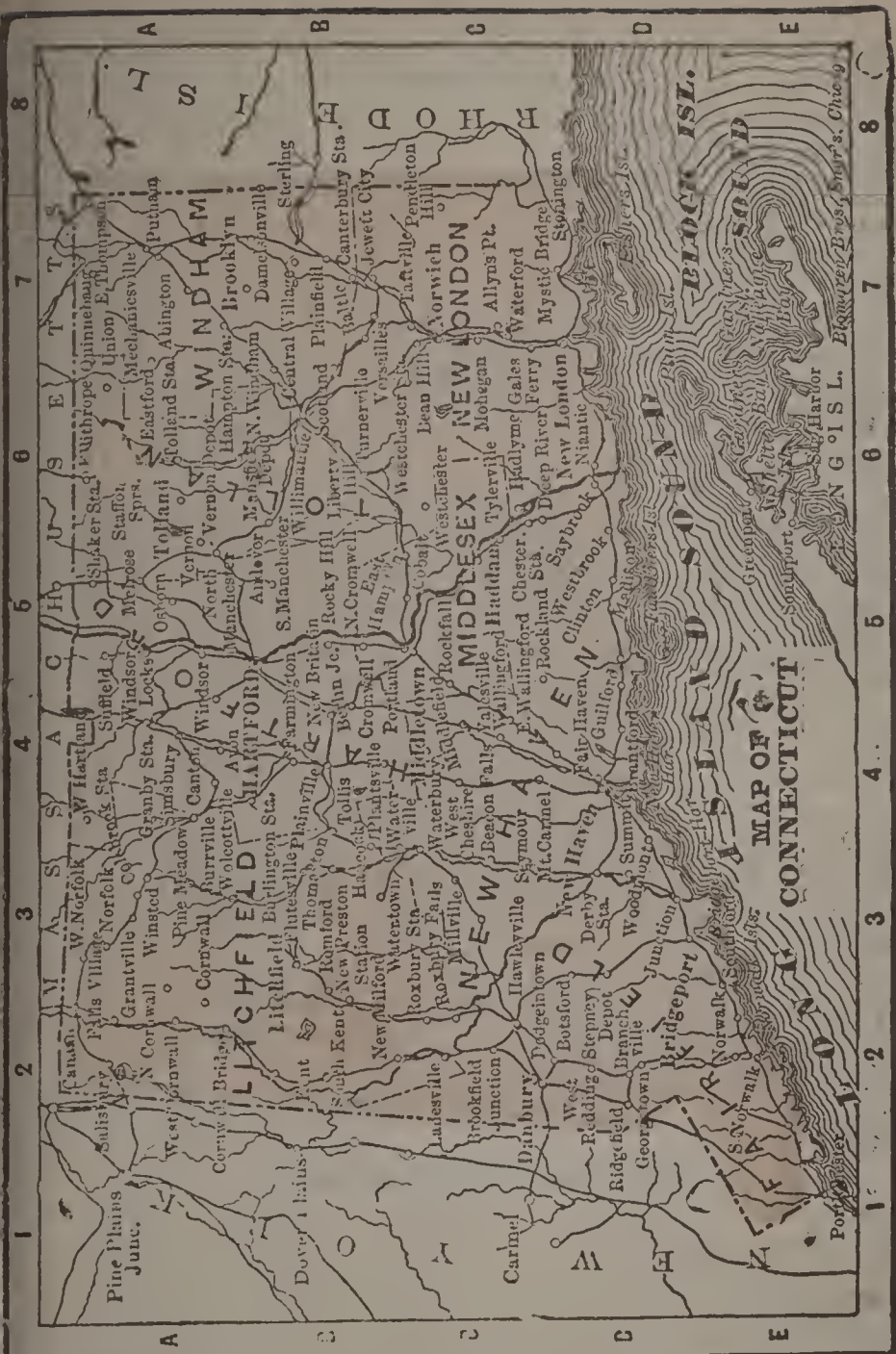
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CONNECTICUT.

"Wooden Nutmeg State." One of the original 13 states explored by the Dutch settlers of Manhattan Island, 1615, by whom settlement was made, 1633, at Hartford. The state furnished a very large quota of men to the Revolutionary armies. Yale College founded 1701. Union soldiers furnished 55,864. Number counties 8. Miles railroad 1,011. State elections yearly on same date as presidential election. Elects 24 senators, 249 representatives, 4 congressmen and 6 presidential electors. State senators hold 2 and representatives 1 year. Legislature meets yearly on Wednesday after first Monday in Jan. Convicts and persons unable to read not permitted to vote. School system superior, includes 3 colleges with 160,000 books in libraries. School age 4-16 years. Legal interest 6 per cent. No penalty for usury. Population, according to census of 1890, 746,258. Area 4,845 sq. miles, average length 86 miles, average breadth 55 miles; sea-coast 110 miles. Surface less rugged than the other New England states. Mountain range terminates in this state in a series of hills. The coast is indented by numerous bays and harbors. Soil, except in valley, light and stony. Corn, oats, hay, wheat, tobacco and vegetables are the staple crops. Cleared land averages \$40 and wood land \$30 per acre. No valuable timber remains. Stone extensively quarried. Valuable iron mines exist. Climate moderate and healthy; average temperature, summer 72 deg., winter 28 deg. Occasionally the thermometer sinks below zero, considerable snow falls, summers warm. rain fall, including snow, about 47 inches. Chief Industries—Manufacture of hardware, clocks, silks, cotton, rubber, carpets, woollens, arms, sewing machines and attachments, dairying, quarrying, agriculture, etc.; total number of industries 4,488. Principal Cities, census of 1890—Hartford, capital and noted for banking and insurance business, pop. 53,182; New Haven, "City of Elms," seat of Yale college, 85,981; Bridgeport, noted for manufacture of fire arms and sewing machines, 48,856; Waterbury, important manufacturing city, 23,591; Danbury, 19,385; Greenwich, 10,120; Manchester, 8,217; Meriden, 21,230; Middletown, 9,012; New Britain, 19,010; New London, 13,759; Norwich, 16,192; Stamford, 15,685; Vernon, 8,807. Fairfield, Middletown, New Haven, New London and Stonington are ports of entry. ☐

SALARIES OF STATE OFFICERS.

| | |
|---|---------|
| Governor | \$2,000 |
| Lieutenant Governor..... | 500 |
| Secretary of State..... | 1,500 |
| Treasurer..... | 1,500 |
| Comptroller..... | 1,500 |
| Secretary State Board of Education..... | 3,000 |
| Adjutant General..... | 1,200 |
| Insurance Commissioner..... | 3,500 |
| Three Railroad Commissioners..... | 3,000 |
| Chief Justice..... | 4,500 |
| Four Associate Justices..... | 4,000 |



MAP OF
CONNECTICUT

BRIDGE ISL.

SHAW'S SOUND

SHAW'S SOUND

SHAW'S SOUND

SHAW'S SOUND

SHAW'S SOUND

SHAW'S SOUND

COLORADO.

"Centennial State." John C. Fremont, "The Pathfinder," crossed Rockies 1842-44. First American settlement near Denver, 1859. Mining begun. Organized as territory Feb. 1861. Indian troubles 1863-4. Union soldiers furnished 4,903. Admitted as a state Aug. 1, 1876. Number counties 39. No railroad in 1870. Mileage 1890, 4,097. All elections Tuesday after first Monday in Nov., number senators 26, representatives 49, sessions biennial in odd-numbered years, meeting first Monday in Jan., limit of session 40 days, term of senators 4 years, of representatives 2 years. Number electoral votes 3, congressmen 1. Convicts excluded from voting. Number colleges 3, school system fair endowment, school age 6-21 years. Legal interest 10 per cent., by contract any rate.

POPULATION—census of 1890—412,198.

Length E. and W. 380 miles, width 280 miles, area 103,845 sq. miles, 66,460,800 acres, three-fifths unsurveyed. Rocky mountains traverse state N. and S. with 3 ranges having many peaks more than 13,000 feet high. Fine grazing grounds. Scenery grand beyond words. Much rich soil along streams and wherever irrigation is possible. Cereals do very well. Corn, wheat, oats, hay, staple crops. Cattle, sheep and hog raising safe and profitable. Dairying pays, as does gardening. Timber resources moderate. Mountains fairly clothed with pine and other trees. Mineral wealth inexhaustible. State ranks first in silver, fourth in gold. Iron, soda, coal, copper, lead, stone, mica, etc., exist in large deposits.

CLIMATE.—Dry and range of temperature comparatively small. Winters mild, summers cool. Average temperature winter 31 deg., summer 73 deg. Rainfall, mainly in May, June and July, average 18 inches. On mountains winters severe, accompanied by heavy snowfall; violent winds common; fogs unknown. Health unsurpassed.

CHIEF CITIES.—Census of 1890—Denver, capital and metropolis, and contains assay office; pop. 106,670; Leadville, 11,159; Colorado Springs, 11,200. State University at Boulder; Agricultural College at Fort Collins; School of Mines at Golden City. Pueblo, pop. 28,128.

LEADING INDUSTRIES.—Mining, smelting ores, agriculture, grazing, etc.

Salaries of State Officers.

| | |
|--------------------------|---------|
| Governor | \$5,000 |
| Lieutenant Governor..... | 1,000 |
| Secretary of State..... | 3,000 |
| Treasurer..... | 3,000 |
| Auditor..... | 2,500 |
| Attorney General..... | 2,000 |
| Chief Justice | 5,000 |



NORTH AND SOUTH DAKOTA.

Named for Dakota Indians. First settled at Pembina 1812. Dakota was organized as territory March, 1861, and admitted to the Union as North and South Dakota on Nov. 3, 1889. First legislature met 1862, at Yankton. Immigration became active 1866. Railroad building active and systems mammoth in their scale. Number counties 129. All elections Tuesday after first Monday in Nov. Number senators from 30 to 50, representatives 60 to 140, sessions biennial. Term of senators 4 years, and of representatives 2 years. Legal interest rate 7 per cent, by contract 12 per cent. usury forfeits excess. Miles railroad in North Dakota, 2,056; in South Dakota, 2,488.

POPULATION, census of 1890, N. Dak., 182,719; S. Dak., 328,808. Average length N. and S. 451 miles, width 348 miles, area 150,932 sq. miles, 95,431,680 acres. Indian reservation principally west of Mi-souri river, 42,000,000 acres, one-seventh good farming land. Surface high, level plain, 950 to 2,600 feet above the sea, traversed by ranges of lofty hills, which at the S. W. reach an elevation of 7,000 feet in the Black Hills. The Missouri river traverses the territory diagonally from N. W. to S. E., and is navigable. Lakes are numerous, especially in the north and east. Devil's Lake is semi-salt. Other large lakes. Soil is very rich and peculiarly suited to wheat, which is the staple crop. Corn, oats, grasses and potatoes do well. Fruit is not a good crop. Cattle, and especially sheep-raising, favored and growing industries. Timber scarce, except along the streams and some of the hills. Gold and silver extensively mined. Black Hills very rich in precious minerals. Ranks fourth in gold output. Good coal west of the Missouri. Not much developed as yet. Deposits of tin said to be of great value exist. Price of land \$1.25 to \$20 per acre (later improved).

CLIMATE.—Temperature ranges from 32 deg. below zero to 100 deg. above. Averages, winter 4 to 20 deg., summer 65 to 75 deg. Winters at north severe, with heavy snow. Moderate at the south. Air clear, dry and free from malaria. Cold not so penetrating as in moister climates. Springs late and summers of medium length. Rainfall 19 in., chiefly in spring and summer.

CHIEF CITIES OF NORTH DAKOTA.—Census of 1890—Fargo, northern metropolis, 5,613; Bismarck, 2,260; Grand Forks, 4,963.

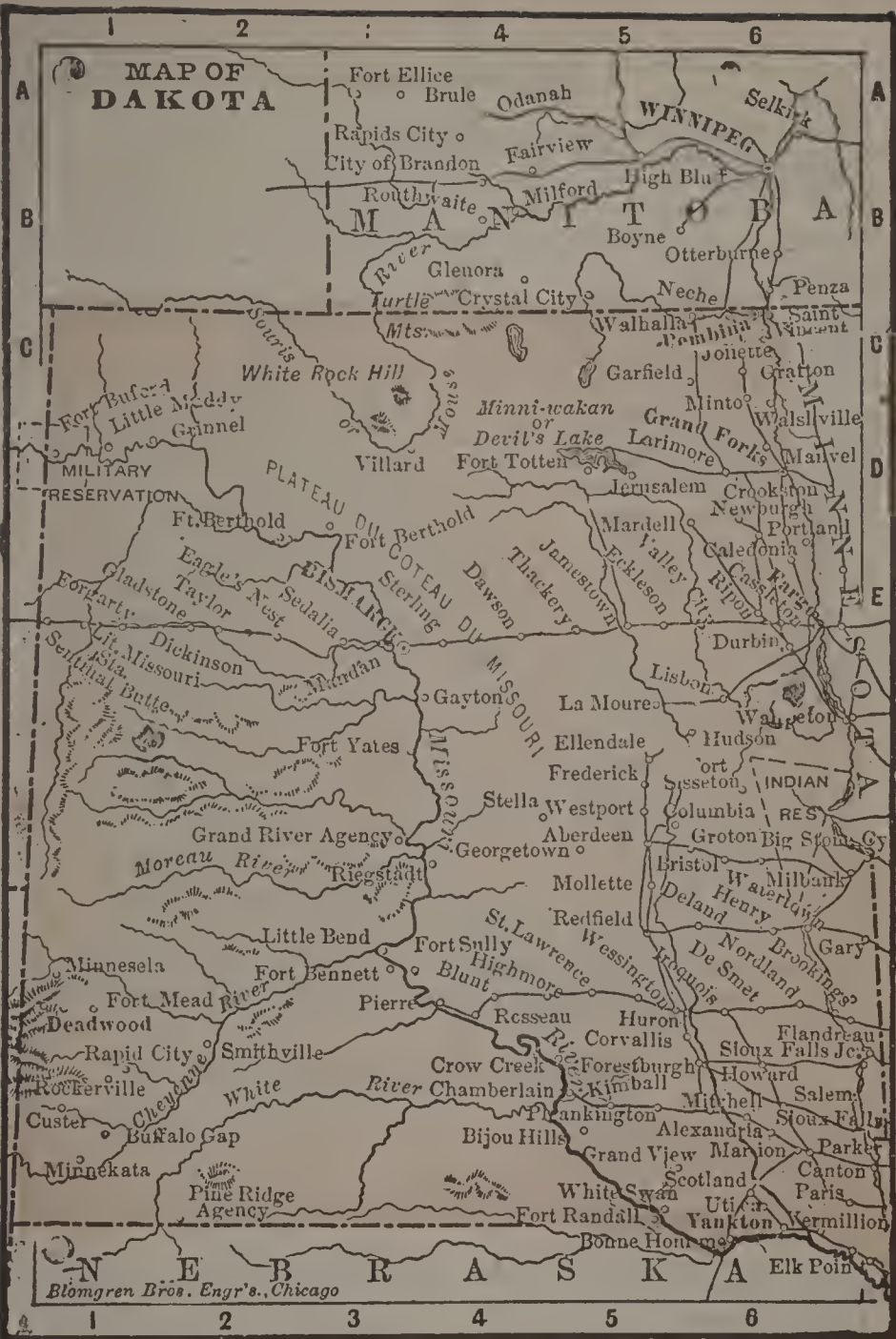
CHIEF CITIES OF SOUTH DAKOTA.—Census of 1890—Yankton, 4,700; Pierre, 3,200; Deadwood, 2,366.

INDUSTRIES.—Almost entire laboring population engaged in agriculture and mining.

SALARIES OF STATE OFFICERS.

Governor \$3,000, Lieutenant Governor \$1,000, Secretary of State \$2,000, Treasurer \$2,000, Auditor \$2,000, Superintendent of Public Instruction \$2,000, Chief Justice \$3,000. Senators and Representatives \$5 a day, mileage 20 cents.

MAP OF DAKOTA



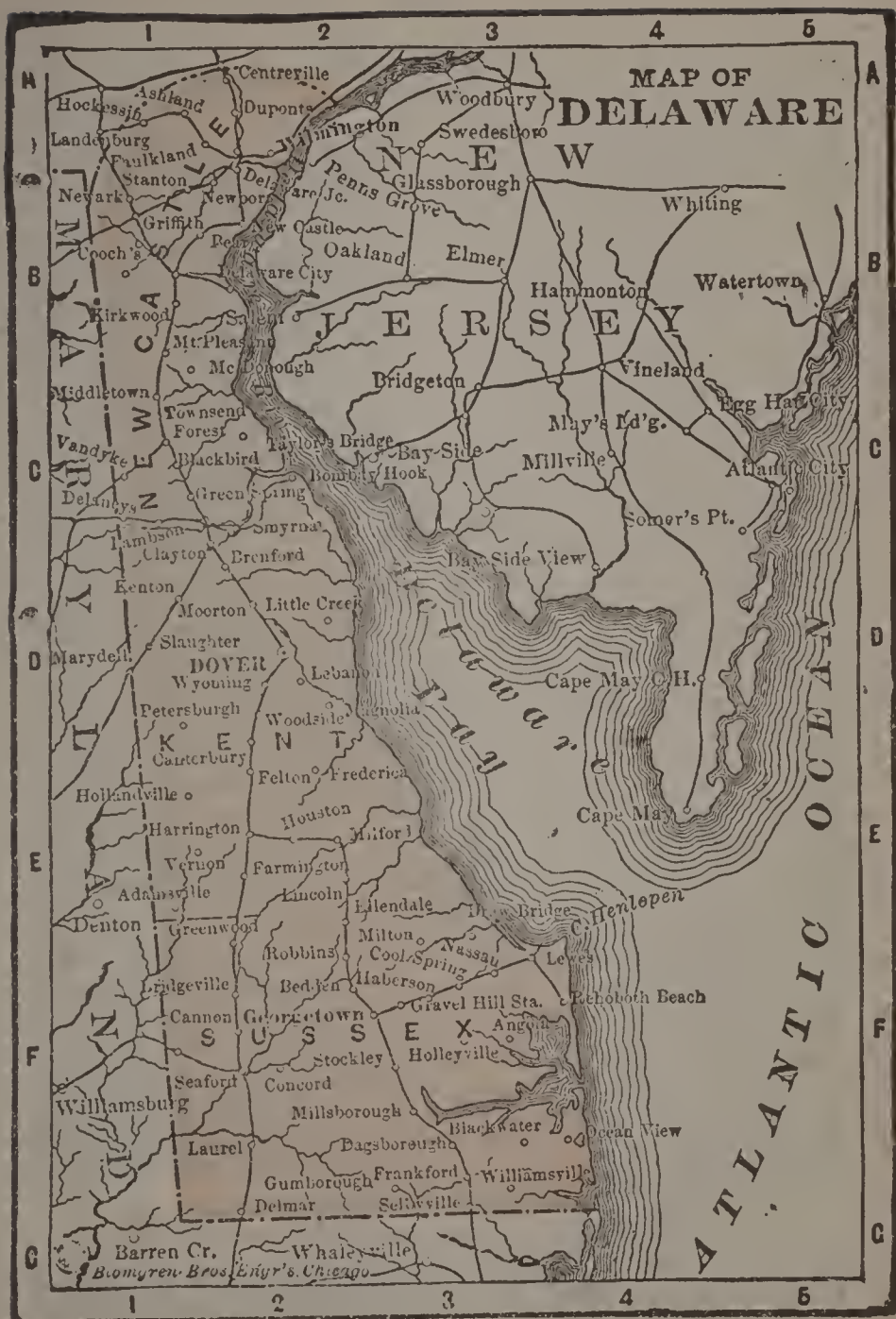
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DELAWARE.

One of the thirteen original states. "The Diamond State." Settled by Swedes 1658, who bought from Indians. Took vigorous part in the revolution. Was a slave state. Slaves 1860, 2,000. Union soldiers furnished 12,284, the biggest percentage of any state. Contains three counties. Miles of railroad 315. All elections Tuesday after first Monday in November, number senators 9, representatives 21, legislature meets in odd-numbered years first Tuesday in January, holds 21 days, term of senators 4 years, of representatives 2 years, number electoral votes 3, number congressmen 1, idiots, insane, paupers and criminals excluded from voting. Colleges at Newark and Wilmington, school age 6-21, schools fair, legal interest rate 6, usury forfeits the principal. Population census of 1890, 168,493. Length north and south nearly 100 miles, width 10 miles at north, 36 at south. Area 1,950 square miles, or 1,248,000 acres. Available area large. Northern portion rolling, but free from large hills. Scenery beautiful. Southern portion level and sandy, with frequent cypress marshes. Coast low and swampy with lagoons separated from sea by sand-beaches. Streams flow into Chesapeake and Delaware bays and are small. Tide reaches to Wilmington. The soil is good and the state of cultivation superior. Cleared land averages \$45 per acre, and wood-land \$40. Staple crops, corn, wheat, peaches, berries, garden vegetables, sweet potatoes. Iron is found, but is no longer worked. Climate mild. Tempered by sea breezes. Average temperature, winter, 32 deg. to 38 deg.; summer, 72 deg. to 78 deg. Rainfall 48 to 50 inches. At north health excellent. Some malaria on the lowlands bordering the swamps at the south. CHIEF CITIES, census of 1890.—Wilmington, pop. 61,437. Dover, capital. Newcastle 6,000. Breakwater protecting Delaware Bay at Cape Henlopen, greatest work of its kind in America, cost the United States \$2,127,400, and was over 40 years in course of construction. INDUSTRIES.—Agriculture and kindred pursuits, manufacture of flour, lumber, cotton, iron, steel, leather, etc., shipbuilding, fishing, canning and preserving. Total number different industries, 750.

SALARIES OF STATE OFFICERS.

| | |
|---|--------------------------|
| Governor | \$2,000 |
| Secretary of State..... | 1,000 |
| Treasurer..... | 1,450 |
| Auditor | 700 |
| Adjutant General..... | 200 |
| Attorney General..... | 2,000 |
| Superintendent of Public Instruction..... | 1,500 |
| State Librarian..... | 450 |
| Chief Justice..... | 2,500 |
| Chancellor..... | 2,500 |
| Three Associate Justices..... | 2,200 |
| Senators and Representatives..... | \$3 per day and mileage. |



FLORIDA.

Named for its flowers, "Peninsula State." Pensacola taken from England by Gen. Jackson during the war of 1812. Entire province ceded to United States 1819. Organized as a territory 1822. Admitted as a state March 3, 1845. State seceded Jan. 10, 1861, re-entered Union July 4, 1868. Number counties 39, miles of railroad 1,324. All elections Tuesday after first Monday in Nov. Numbers senators 32, representatives 76. Sessions of legislature biennial, in odd-numbered years, meeting Tuesday after first Monday in January, holds 60 days. Term of senators 4, of representatives 2 years. Number electoral votes 4, congressmen 2. Idiots, insane, criminals, betters on elections and duelists excluded from voting. Schools fair, school age 4-21. Legal interest 8 per cent, by contract any rate. Population, census of 1890—391,422. Number of slaves in 1860, 61,745. Four-fifths of Florida is in the peninsula, which is about 350 miles N. and S. and 105 miles E. and W. Remainder is the narrow strip along the Gulf, 342 miles E. and W. and 10 to 50 miles N. and S. Area 59,268 sq. miles, 37,931,520 acres. Twenty-first state in size. State surrounded by sea except on north. Coast line over 1,200 miles. Good harbors rare, mostly on Gulf. The northern section is a limestone formation, affording a fair soil. In the middle section are found tracts of great richness. At the south the soil, when dry or reclaimed, is inexhaustible. Shores very low frequently not two feet above tide water. Coral growth at south continues. Surface dotted with lakes. The staple products are corn (most valuable crop), sugar, molasses, rice, cotton, oats, tobacco, vegetables of all kinds, peaches, oranges, and all tropical and semi-tropical fruits, cocoanuts, lumber, fish, oysters, etc. Poultry and stock raising are successful. Cleared land averages \$12, woodland \$3, swamp \$1, and school land \$1.25 per acre. Much forest remains. Timber, chiefly pine, of moderate size, free from undergrowth. Game abounds. Climate superb. No snow. Frosts rare at north, unknown at south. Temperature ranges 30 deg. to 100 deg., rarely above 90. Winter averages 59 deg., summer 81 deg. Breezes blow across from Gulf to Atlantic and vice versa, temper the heat and keep air dry and clear. Average rainfall 55 inches, chiefly in summer. **CHIEF CITIES**, census of 1890—Key West, good harbor and naval station, pop. 18,058. Jacksonville, pop. 17,139. St. Augustine, oldest town in United States. Tallahassee, pop. 2,983, capital. Pensacola, pop. 11,751. **PRINCIPAL INDUSTRIES**.—Almost the entire laboring population is engaged in agriculture and fruit growing. Fishing for fish and oysters and lumbering largely followed. Railroads, 1890, 2,378 miles.

Salaries of State Officers.

Governor \$3,500, Lieutenant Governor \$500, Secretary of State \$2,000, Treasurer \$2,000, Comptroller \$2,000, Attorney General \$2,000, Superintendent of Public Instruction \$2,000, Adjutant General \$2,000, Land Commissioner \$1,200, Chief Justice \$3,500.

MAP OF FLORIDA

North-western
Portion of
FLORIDA

Blomgren Bros., Eng's Chicago

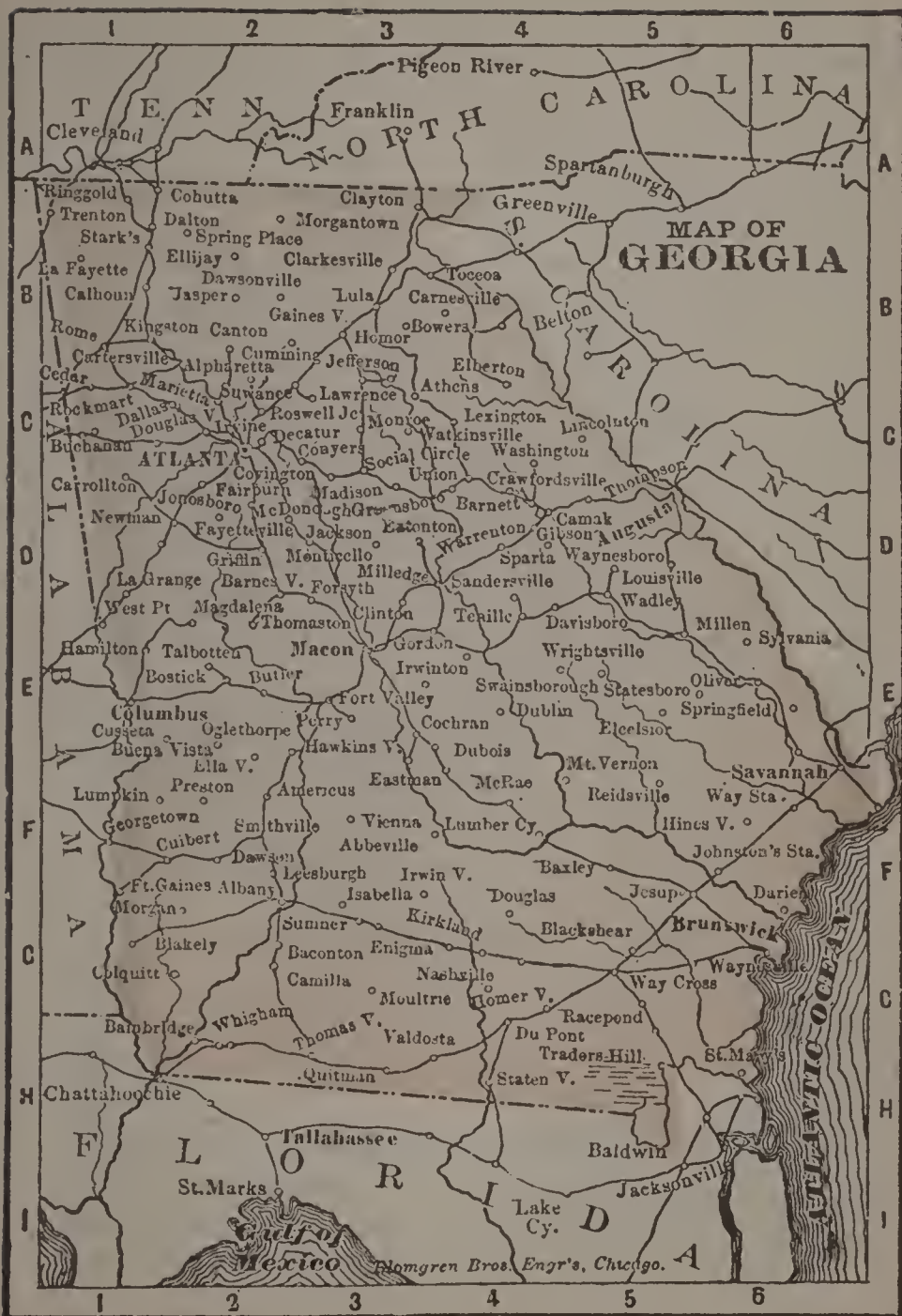
Florida Keys



GEORGIA.

One of the thirteen original states, named for King George II. of England, called the "Empire State of the South." Originally a part of South Carolina and claimed by Spain. Active in the Revolution, suffering badly from devastation by English. Severe wars with Creeks and Cherokees settled by treaties 1790 and 1791. State seceded January 19, 1861. Many hard fought battles during civil war, including Atlanta, etc. Re-entered Union 1870. Number counties 137, miles of railroad 2,687, state elections first Wednesday in October, number senators 44, representatives 175, sessions, biennial in even-numbered years, meeting first Wednesday in November, hold forty days. Terms of senators and representatives two years each. Number electoral votes 12, number congressmen 10. Idiots, insane, criminals and non-taxpayers excluded from voting. Number colleges 7, State University at Athens organized 1801, public schools excellent, school age 6-18. No state license law governing commercial travelers, but Atlanta, Athens, Augusta and Savannah exact a tax. Legal interest 7%, by contract 8%, usury forfeits excess of interest. Population, census of 1890—1,837,353. Greatest length N. and S. 321 miles, greatest width 255 miles, area 58,980 square miles or 37,747,200 acres, exclusive of water area. Surface diversified. At the north are the Blue Ridge, Etowah and other mountains. In the southeast is the Okefinokee swamp, 150 miles in circumference. Coast irregular and indented, shore line about 500 miles, three seaports. Mountain streams are rapid picturesque cataracts and immense basins. The chief falls are the Tallulah, in Habersham county, Toccoa, in the Tugalo, 180 feet high, Towaliga, in Monroe Co., and the Amicolah, which descend 400 feet in a quarter mile. Corn, wheat, oats, cotton, rice, sweet potatoes, tobacco, sugar and melons, chief agricultural staples. Fruit, both temperate and semi-tropical, thrives. Stock flourishes. Wool-growing important. Gold is extensively mined. Coal, iron, marble exist. Cleared land averages \$8 and woodland \$5.50 per acre. One-fourth area heavily timbered with yellow pine of great value for lumber, turpentine, etc. CLIMATE.—At the north mild and extremely healthy, hot in the lowlands. Range of temperature 30 deg. to 105 deg. Average, winter 49 deg., summer 82 deg. Rainfall averages 55 inches. CHIEF CITIES, census of 1890.—Savannah, pop. 41,762, Brunswick, pop. 8,493, port of entry. Columbus contains the largest cotton mill in the South, pop. 18,650. Atlanta, capital, pop. 65,515, Augusta, 33,150, Macon, 22,698. PRINCIPAL INDUSTRIES.—Three-fourths population engaged in agriculture. Remainder in various pursuits. Manufacturing important. Raw materials becoming more abundant and cheap. R. R. mileage in 1890, 4,268.

(Salaries State Officers, page 439.)



IDAHO.

Gold discovered, 1880, in Oro Fino creek. Organized as territory March, 1863, and admitted to the Union July 3, 1890. Number counties 18. All elections Tuesday after first Monday in Nov., number senators, 12, representatives, 24, sessions of legislature biennial, in even-numbered years, meeting second Monday in Dec., holds 60 days. terms of senators and representatives, 2 years each. School age, 5-21 years. Legal interest rate 10 per cent., by contract, 18 per cent., usury forfeits three times excess of interest; miles railroad, 929.

Population, 1880, 32,610. Males, 21,818, females, 10,792, natives 22,636, foreign, 9,974, white, 29,013, Indians, 165. Estimated increase, 16 per cent.

TOPOGRAPHY, AREA, SOIL, PRODUCTS, ETC.—Length, 140 to 490 miles, width 45 to 286 miles. Area, 84,290 sq. miles, 53,944, -600 acres. Surface table land and mountains. About one-twelfth is arable and one-tenth more grazing land. One-third barren, but may be reclaimed by irrigation. Many lakes are found, as well as numerous water powers. Forests estimated at 9,000,000 acres. The soil, where water can be had, is fertile. Wheat, oats, rye, barley, potatoes and hay are good crops, and dairying and stock-raising profitable. Gold is found in quartz veins in Idaho, Boise and Alturas counties, silver in Owyhee county. Some of the mines very rich. Wood river district on southern slope of Salmon River mountains, at headwaters of Wood or Malad rivers, gives promise of valuable mining operations, chiefly placers. Coal in vicinity of Boise City. Territory ranks sixth in gold and silver.

Climate severe, with heavy snows in mountains, on plains less severe, but cold and bracing. In the valleys it is milder, with moderate snowfall. Summers cool and pleasant. Temperature averages 20 deg. in winter, 70. deg. in summer. Rainfall small in the Rocky and Bitter Root mountains, and very light at the N. and W.

CHIEF CITIES.—Boise City (capital), Florence, Silver City.

LEADING INDUSTRIES.—Mining, grazing, agriculture, smelting and lumbering.

Salaries of State Officers.

| | |
|---|------------------|
| Governor..... | \$2,600 |
| Secretary..... | 1,800 |
| Treasurer..... | 1,000 |
| Auditor..... | 1,800 |
| Librarian..... | 250 |
| Chief Justice..... | 3,000 |
| Two Associate Justices..... | 3,000 |
| Senators and Representatives...\$4 per day and 20 cents mileage | |
| Two District Attorneys..... | \$250 and fees |
| Collector of Internal Revenue..... | 2,250 |
| Three Deputy Collectors..... | \$1,400 to 1,600 |
| Assayer..... | 2,000 |

MAP OF IDAHO



ILLINOIS.

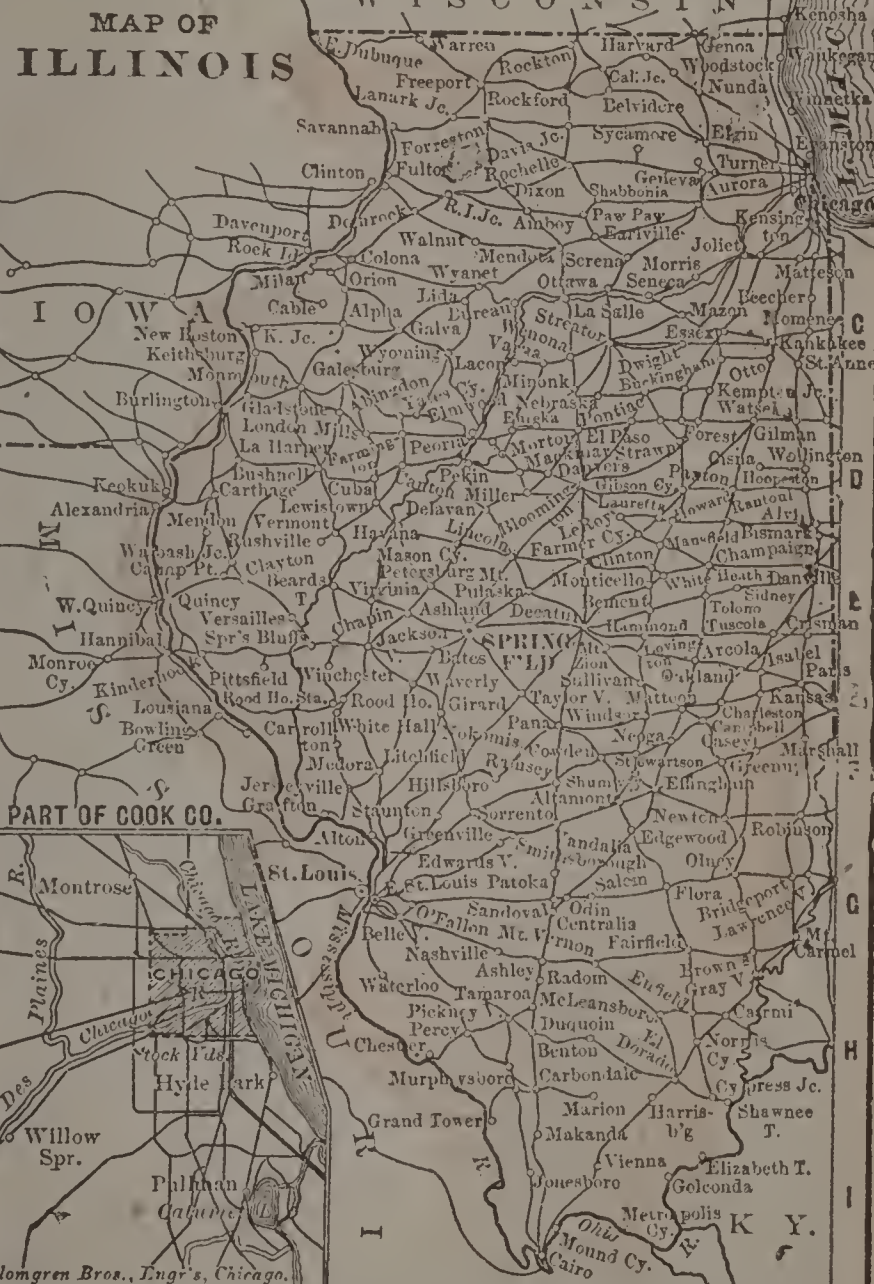
Nam: derived from Illini tribe of Indians, meaning Superior Men. Called "Prairie State" and "Sucker State." Ft. Dearborn (Chicago) massacre, 1812, by Pottawatomies. Admitted as state, 18'8. Capital moved to Springfield, 1836. Soldiers in Mexican war, 5,000. Union soldiers, 259,092. Number counties, 102. All elections, Tuesday after first Monday in Nov.; number senators, 51; representatives, 153; sessions biennial, in odd-numbered years, meeting first Monday in Jan., term of senators, 4 years; representatives, 2 years. Number electoral votes, 22; congressmen, 20; number voters, 796,847; convicts excluded from voting. School system excellent; number colleges, 28; school age 6-21. Legal interest, 6 pct.; by contract, 8 pct.; usury forfeits entire interest. Miles of railroad, 9,965. Population, census of 1890, 3,826,351. Extreme length N. and S. 386 miles; extreme width, 218 miles. Av. elevation, 482 ft., elevation at Cairo, 340 ft.; highest point, 1,140 ft. in northw. portion. Area, 56,000 sq. m., 35,840,000 acres; miles of navigable waterways, 4,100. Frontage on Lake Michigan, 110 miles. Among first agricultural states of Union. Staple crops, corn, wheat, oats, rye, barley, broomcorn, vegetables, hay, potatoes, etc. Fruits and grapes do well at south. Yield of all crops cultivated, large. Coal area, two-thirds state. First coal mined in America at Ottawa; quality moderately fair. Considerable forest of hardwoods at south on hills and in bottoms. Superior quality limestone on Fox and Desplaines rivers; lead, most important mineral; Galena in center of richest diggings in N. W. Rich salt wells in Saline and Gallatin counties, 75 gal. brine making 50 lbs. salt. State ranks first in corn, wheat, oats, meat packing, lumber traffic, malt and distilled liquors and miles railway; second in rye, coal, agricultural implements, soap and hogs; fourth in hay, potatoes, iron, steel, mules, milch cows and other cattle. Cleared land av. \$28, and woodland or raw prairie, \$18 per acre. Climate healthful as a rule; subject to sudden and violent changes at north. Temp. ranges from 30 deg. below zero to 101 deg. above. Av. temp. at Springfield, 30 deg. winter; 78 deg. summer. At Chicago, 25 deg. winter, 72 deg. summer. At Cairo, 38 deg. winter, 80 d. summer. Frost comes last of Sept. Vegetation begins in April. Rainfall 37 inches. Chief Cities, census of 1890—Chicago, pop. 1,099,133; Peoria, 40,758; Quincy, 31,478; Springfield (capital), 24,872; Aurora, 19,634; Bloomington, 22,242; Decatur, 16,841; Elgin, 17,429; Joliet, 27,407; Rockford, 23,589; Rock Island, 13,596. Industries—Agricult., mining, stock raising and mfg. of all kinds.

Salaries of State Officers.

Governor \$6,000, Sec. of State \$3,500, Treas. \$3,500, Auditor \$3,500, Attorney General \$3,500, Chief Justice \$5,000, Senators and Representatives \$5 per day, mileage 10 cents and \$50

MAP OF ILLINOIS

WISCONSIN



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INDIANA.

"Hoosier State." Settled at Fort St. Vincents, now Vincennes, in 1702, by French-Canadian voyagers. Admitted as a state Dec. 11, 1816. Sixth state admitted. Soldiers furnished in Mexican war 5,000. Union soldiers 196,363. Number counties, 92. All elections Tuesday after first Monday in Nov.; number senators, 50; representatives, 100; sessions of legislature biennial, in odd-numbered years, meet Thursday after first Monday, holds 60 days: terms of senators 4 years, of representatives, 2; number electoral votes, 15; number congressmen, 13; number voters, 498,437. Fraudulent voters and bribers excluded from voting. Number of colleges 15, State University at Bloomington; medical school at Indianapolis, university at Notre Dame, flourishing common-school system; school age, 6-21. Legal interest rate 6 pct., by contract 8 pct., usury forfeits excess of interest. Miles of railroad, 6,004. Population: Census of 1890—2,192,404. Extreme length N. and S. 275 miles, width averages 150 miles, area 35,910 sq. miles, 22,982,400 acres. Surface sometimes hilly. No mountains. Hills 200 to 400 feet above the surrounding country. Frontage on Lake Michigan 43 miles. River bottoms wide and unsurpassed in fertility, highlands when level, rich, black or sandy soil. All crops and fruits of the temperate zone do well both in yie'd and quality. State highly favored for agriculture and manufacturing. Ranks second in wheat, fourth in corn, hogs and agricultural implements, fifth in coal. Cattle, hogs, sheep, horses, etc., are most successfully raised. Corn, wheat, oats, staple crops. Timber still abundant at south, but in scattered tracts. Coal fields in southwestern portion of state over 7,000 sq. miles, on much of which are 3 workable veins. Kinds of coal, block, cannel and ordinary bituminous, cokes well, superior for gas. Building stones varied and of unsurpassed quality, including the famous Bedford stone. Supply unlimited. Land is cheap, cleared averaging \$18, and woodland \$14 per acre. In rich section to southwest cleared land \$15, woodland \$10 to \$12. Chances for making homes, comfort and advantages considered, not excelled elsewhere. Iron ore is found.

Climate changable in winter, but seldom severe; winds from north and west; summers moderately long, and sometimes hot: temperature averages, winter 34 deg., summer 78 deg. Trees blossom in March. Rainfall 40 inches. Health excellent. Malaria rapidly disappearing from bottoms before proper drainage. Chief Cities: Census of 1890—Indianapolis (capital) contains deaf and dumb, blind and insane asylums, pop. 107,445; Terre Haute, 31,000; Evansville, 50,647; Fort Wayne, 35,349; Michigan City, lake port, 10,704; Anderson, 10,759; Elkhart, 11,489; Lafayette, 16,283; Logansport, 13,796; New Albany, 21,000; South Bend, 21,786. Industries—Agriculture, mining and manufacturing.

[Salaries of State Officers, page 439.]



INDIAN TERRITORY.

Set apart for peaceful tribes. Organized 1834, no territorial government. Government in hands of tribes. Also contains Oklahoma territory, which was opened to settlement by proclamation of President Harrison on April 22, 1889. Oklahoma Ter. contains 2,037,414 acres. Each tribe elects officers, legislatures and courts, and criminals are punished as in the states. No laws for collections of debt. All land held in common, and any Indian may cultivate as much as he wants, but one-quarter mile must intervene between farms. Whites can hold land only by marrying an Indian. Miles of railroad, 1,155. School system excellent, pupils educated and supported by the tribes, half entire revenue being set aside for the purpose. Three colleges, 200 schools.

Population, census of 1890, 119,000. Cherokees 20,000, Choctaws 16,500, Creeks 14,500, Chicasaws 7,000, Seminoles 2,500, Osages 2,400, Cheyennes 3,298, Araphoes 2,676, Kiowas 1,120, Pawnees 1,438, Comanches 1,475. Two-fifths of entire population can read. Extreme length east and west 470 miles, average length 320 miles, width 210 miles, area 69,991 miles, 44,154,240 acres. Surface vast rolling plain sloping eastward. Valleys timbered heavily with hard woods. South of Canadian river prairies very fertile, valleys rich and productive throughout territory, grass rich and heavy almost everywhere. Corn, cotton, rice, wheat, rye, potatoes are staples. Grazing interests large. Coal is found, but extent unknown. Fur-bearing animals numerous.

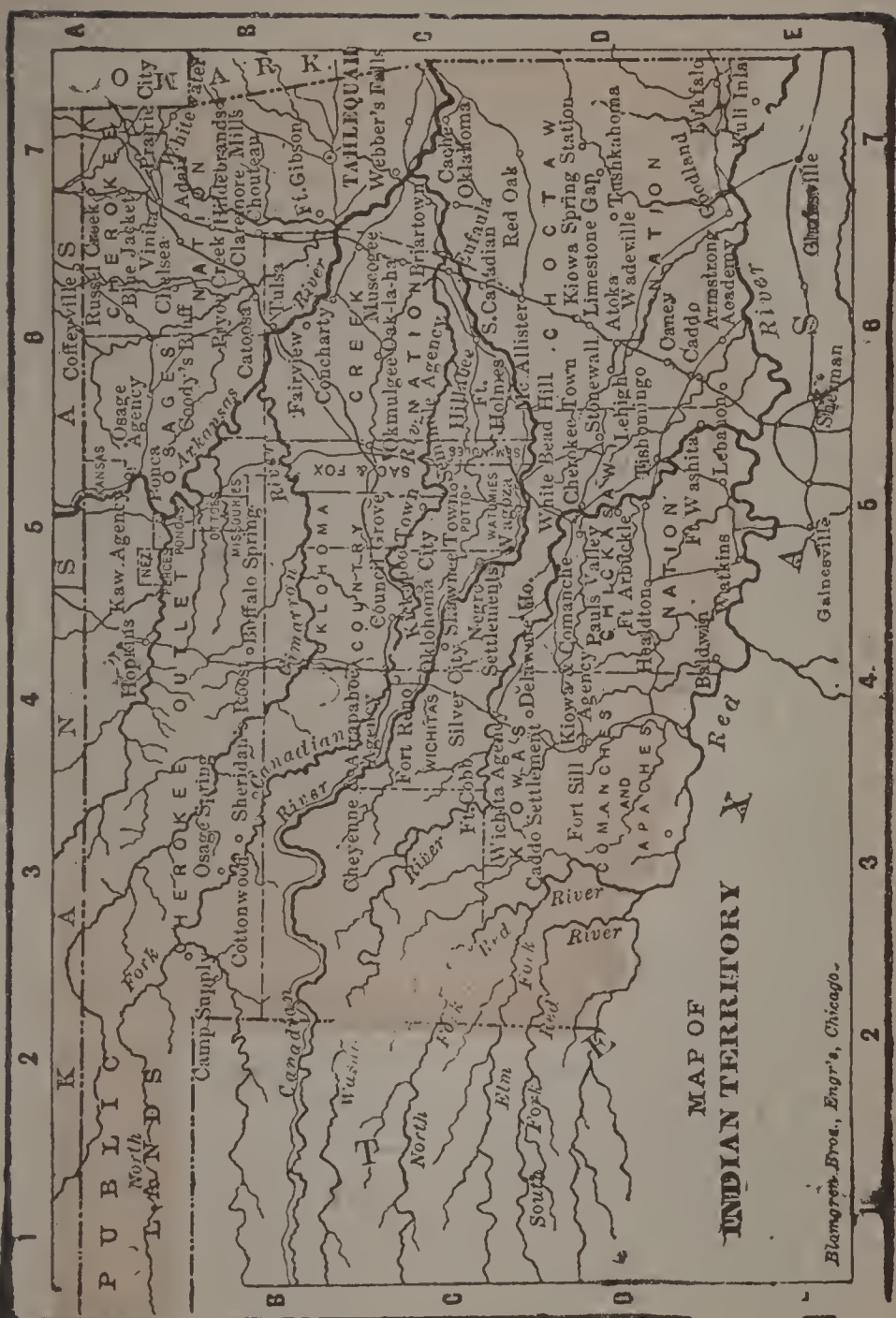
CLIMATE.—Mild in winter, warm in summer. Temperature averages 41 deg. winter, 80 deg. summer. Rainfall at east, 50 inches, center 36, far west 22. Health as good as anywhere in Union.

CHIEF CITIES.—Guthrie 5,311, Oklahoma City 4,138, Kingfisher 1,133; Tahlequah, capital of Cherokees, Tishomingo, capital of Chicasaws, Tushkahoma, of Choctaws, Muscogee, of Creeks, Pawhuska, of Osages, Seminole Agency, of Seminoles, Pawnee Agency, of Pawnees, Kiowa and Comanche Agency, of Kiowas and Comanches.

LEADING INDUSTRIES.—Agriculture and grazing.

INDIAN AGENCIES.

| ARAPHOE. | | OSAGE. | |
|---------------------|---------|---------------------|---------|
| Agent..... | \$ 900 | Agent..... | \$1,600 |
| | | Physician..... | 1,200 |
| CHEYENNE. | | OTOE. | |
| Agent..... | 2,200 | Agent..... | 1,500 |
| Physician..... | 1,200 | Physician..... | 1,000 |
| KAW. | | PAWNEE. | |
| Superintendent..... | 1,600 | Clerk..... | 1,200 |
| Physician..... | 1,200 | Physician..... | 1,000 |
| KIOWA AND COMANCHE. | | PONCA. | |
| Agent..... | 1,000 | Superintendent..... | 1,200 |
| Physician..... | 1,000 | Clerk..... | 720 |
| OAKLAND. | | QUAPAW. | |
| Supt..... | \$1,000 | Agent..... | \$1,500 |
| 3 Teachers... | 600 | Physician.... | 1,200 |
| | | SAC AND FOX. | |
| | | Agent..... | \$1,200 |
| | | 2 Physicians. | 1,000 |



MAP OF
INDIAN TERRITORY

Blomgren Bros., Engrs, Chicago.

IOWA.

"Hawkeye State." Settled first by Dubuque, 1788. a French Canadian, for whom that city is named. First settlers miners of lead. Active immigration began 1833. Iowa territory organized July 4, 1838. Admitted as state 1846. Union soldiers furnished 76,242. Number counties 99, miles of railroad 8,436. State elections annual, Tuesday after second Monday in October, excepting years of presidential elections, when all elections occur together. Number senators 50, representatives 100, sessions of legislature biennial, in even-numbered years, meeting second Monday in January. Terms of senators 4 years, of representatives 2 years. Number electoral votes 13, congressmen 11. [Idiots, insane and criminals excluded from voting. Number colleges 19, school age 5-21. School system admirable, endowment liberal. Legal interest rate 6 per cent., by contract 10 per cent., usury forfeits 10 per cent. per year on amount. State has adopted prohibition.

Population, census of 1890, 1,911,896.

Extreme length E. and W. 208 miles, width 208 miles, area 55,470 sq. miles, 35,500,800 acres. Surface almost an unbroken prairie, without mountains and with very few low hills. Natural meadows everywhere, and water abundant. Many small lakes at north. Highest point Spirit Lake, 1,600 feet above the sea. Soil superior. Corn, wheat, oats, potatoes, hay, barley, sorghum, rye, staples. Apples unsurpassed in United States; pears, plums, cherries, grapes and berries are excellent crops. Cattle and other stock interests large and thrifty. Dairying attractive. Forest area small—scarcely equal to home requirements. Coal area fair. Other minerals unimportant. Manufacturing active. Improved land averages \$20; unimproved, including railroad and government domains, \$12.50. State ranks first in hogs, second in milch cows, oxen and other cattle, corn, hay and oats; third in horses; fifth in barley and miles of railway.

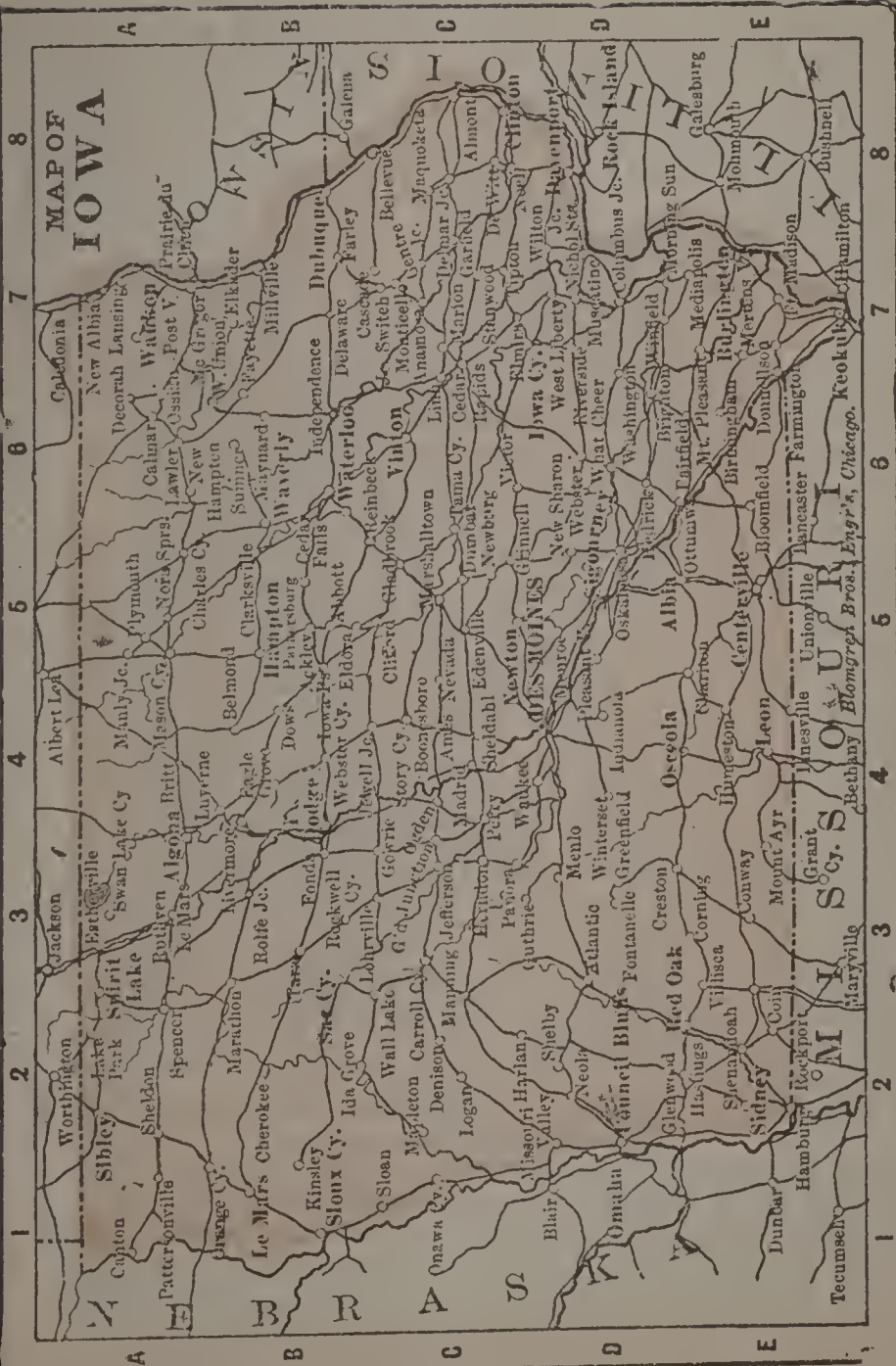
Climate subject to extremes. Winter severe, with sharp north and west winds; summers pleasant. Temperature averages, summer 72 deg., winter 23 deg.; ranges from 10 deg. below to 99 deg. above zero. Rainfall 42 inches. Wheat harvest in August.

CHIEF CITIES—Census of 1890.—Des Moines, metropolis and capital, pop. 50,067; Dubuque, 30,147; Davenport, 25,161; Burlington, 26,000; Council Bluffs 3,21,388. Keokuk, Burlington and Dubuque are United States ports of delivery. Cedar Rapids, 17,977; Clinton, 14,000; Davenport, 25,161; Keokuk, 14,075; Sioux City, 37,862.

LEADING INDUSTRIES.—Agriculture, stock-raising and manufacturing.

[Salaries of State Officers, page 439.]

MAP OF IOWA



KANSAS.

Name Indian, means "Smoky water." Called the "Garden State." Kansas Territory organized May, 1854. Law known as "Missouri Compromise," forbidding slavery in states formed out of Louisiana purchase north of latitude 36 deg. 30 min. repealed, and question of slavery left to the territory. At first it was decided for slavery. Constitution prohibiting slavery adopted July, 1859. Admitted as a state 1861. Union soldiers furnished, 20,149, number counties 95, miles railroad 8,810, first railroad built 1864, 40 miles long. All elections Tuesday after first Monday in Nov. senators 40, representatives 125, sessions biennial, meeting second Tuesday in Jan. in odd-numbered years, limit of session 50 days; term of senators 4 years, of representatives 2 years. Number electoral votes 9, congressman 7. Idiots, insane, convicts and rebels excluded from voting. Number colleges 8, number schoolhouses over 8,000, school age 5-21 years; school system magnificent. Endowment immense. Legal interest 7 per cent, by contract 12 per cent, usury forfeits excess of interest.

POPULATION.—Cens 18 of 1890, 1,427,096.

Extreme length E. and W., 410 miles, breadth 210 miles, area 81,700 sq. miles, 52,288,000 acres. No mountains. There is little navigable water. Water powers of fair proportion, irrigation necessary in large sections. Coal area of moderate extent; veins usually thin; quality fair. Soil fine. Corn, wheat, oats, hemp, flax and rye, staples. Castor beans and cotton grows successfully. Soil of prairies deep loam of dark color; bottoms sandy loam. Peculiarly favorable to stock-raising. Prairie rich in grasses. Dairying favored. Fruits successful. Forests small. Limestone and colored chalk furnish building materials. Value improved land averages \$12 per acre, woodland \$15. Manufacturing growing. State ranks fifth in cattle, corn and rye. CLIMATE—Salubrious; winters mild, summers warm, air pure and clear. Temperature averages winter 31 deg., summer 78 deg., ranges 8 deg. below to 101 deg. above zero: such extremes exceptional. Rainfall averages 45 inches at east, 33 inches at west.

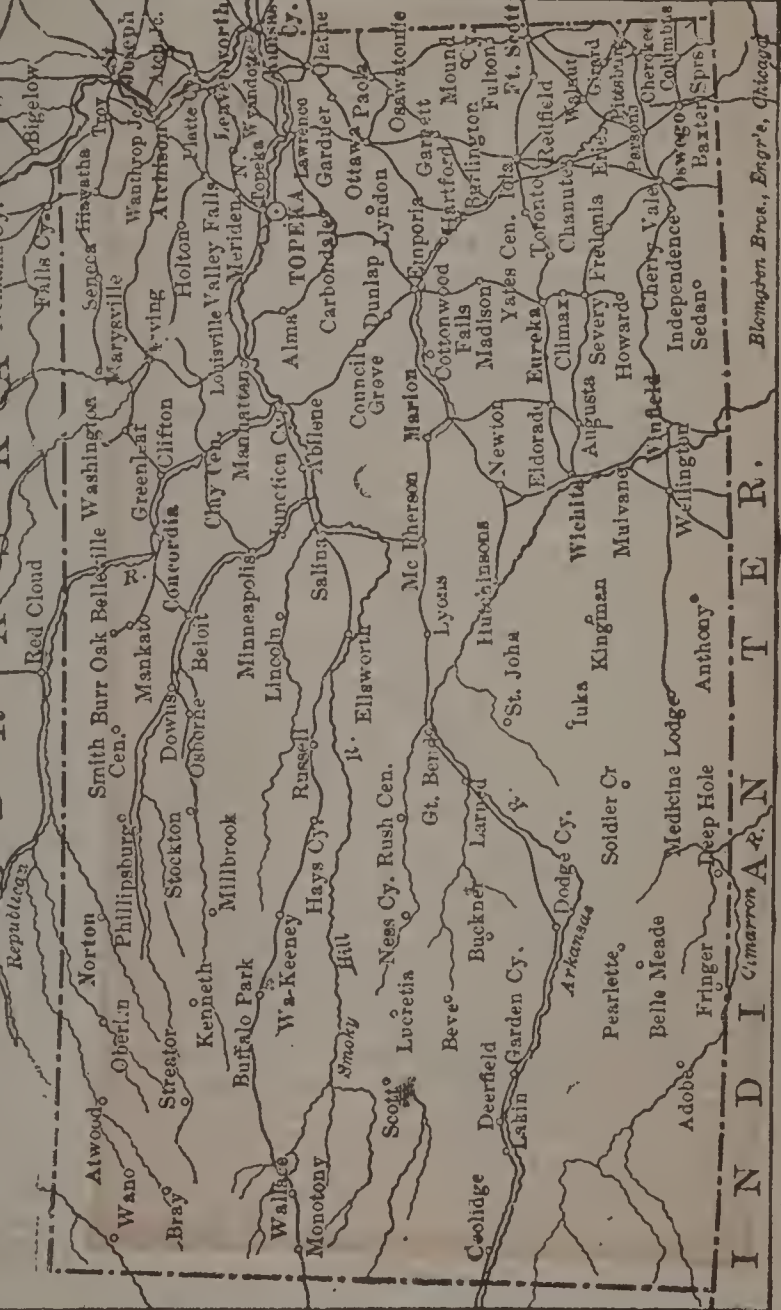
CHIEF CITIES.—Census of 1890.—Leavenworth, pop. 21,613, Topeka (capital) 31,809, Atchison 14,222, Fort Scott, 11,837; Wichita 24,000, Lawrence 9,975. State University at Lawrence, state asylums for insane and feeble-minded at Topeka and Ossawatimie: institution for education of the blind at Wyandotte, for deaf mutes, Olathe.

INDUSTRIES.—Agriculture, stock-raising, manufacturing, etc.

SALARIES OF STATE OFFICERS.

Governor \$3,000, Secretary of State \$2,000, Treasurer \$2,500, Auditor \$2,000, Attorney General \$1,500, Superintendent of Public Inst. \$2,000, Secretary Board of Agriculture \$2,000. Insurance Commissioner \$2,500, three Railroad Commissioners \$3,000, State Librarian \$1,500, Chief Justice \$3,000, two Associate Justices \$3,000, Senators and Representatives \$3 per day, mileage 15 cents, District Judge \$3,500, Pension Agent \$4,000.

A map of the Hastings area. The Hastings River flows from the top left towards the bottom right. The town of Hastings is located on the river. Other towns shown include Marysville, Cornish, and Newsham. The map also shows some roads and a railway line.



Blomington Bros., Engr's, Chicago

LOUISIANA.

Named for Louis XIV of France. Called the "Pelican State" and the "Creole State." First sugar cane cultivated in United States near New Orleans 1751. First sugar mill 1758. First shipment of cotton abroad 1784. Purchased by United States 1803, for \$15,000,000. Louisiana admitted as a state under present name April 8, 1812. In the war with England immediately following, the state made a glorious record, and at the battle of New Orleans, Jan. 8, 1815, humiliated the British and ended the war. Seceded Jan. 26, 1861. Some fighting on the river between boats and forts. New Orleans captured May 1, 1862. 1863, in June, state re-entered Union. Capitol, Baton Rouge. Number of parishes or counties 58, miles railroad 1,316. Legislature and state officers elected quadrennially, members congress biennially, state elections Tuesday after third Monday in April, number senators 36, representatives 98, sessions biennial, in even-numbered years, meeting second Monday in May, holds 60 days, terms of senators and representatives 4 years each. Number electoral votes 8, congressmen 6, miles of railroad in 1890, 1,654. Idiots, insane and criminals excluded from voting. Legal interest 5 per cent, by contract 8 per cent, usury forfeits entire interest. Educational facilities average. POPULATION: Census of 1890, 1,118,537. Number slaves in 1860, 331,726. Extreme length E. and W. 294 miles, breadth 248 miles, area 45,420 sq. miles, 29,068,800 acres. Coast line 1,276 miles, very irregular navigable rivers 2,700 miles. Mississippi flows in or on the borders of the state. Bays numerous on coast but harbors indifferent. Many small islands in Gulf. Staple products, sweet potatoes, sugar, molasses, rice, corn, cotton, grasses, oats, etc. All fruits of the semi-tropical climate thrive. State ranks first in sugar and molasses and third in rice. Forests almost inexhaustible. Timber superior in kind and quality, lumbering important industry. Salt produced on a large scale. Iron discovered. Cleared land averages \$12.50, woodland \$3 to \$4 per acre. Reclamation of marshes very profitable and beginning to be done on a large scale. Moss-gathering profitable and invites more attention. CLIMATE.—Temperature ranges from 44 to 100 deg., average summer 81 deg., winter 55 deg. Rainfall 57 inches, chiefly in spring and summer. Summers long and occasionally hot. Health average. Actual death rate lower than in many northern sections. Occasional yellow fever in the cities. CHIEF CITIES.—Census of 1890. New Orleans port of entry and largest cotton market in the world 241,995, Baton Rouge (capitol) 10,397, Shreveport 11,482, Morgan City port of entry. State institution for insane at Jackson, for deaf mutes and blind Baton Rouge. INDUSTRIES.—Three-fifths of laboring population engaged in agriculture. Average income of rural population among highest in Union. Number industries 1,600

(Salaries of State Officers, page 439.)

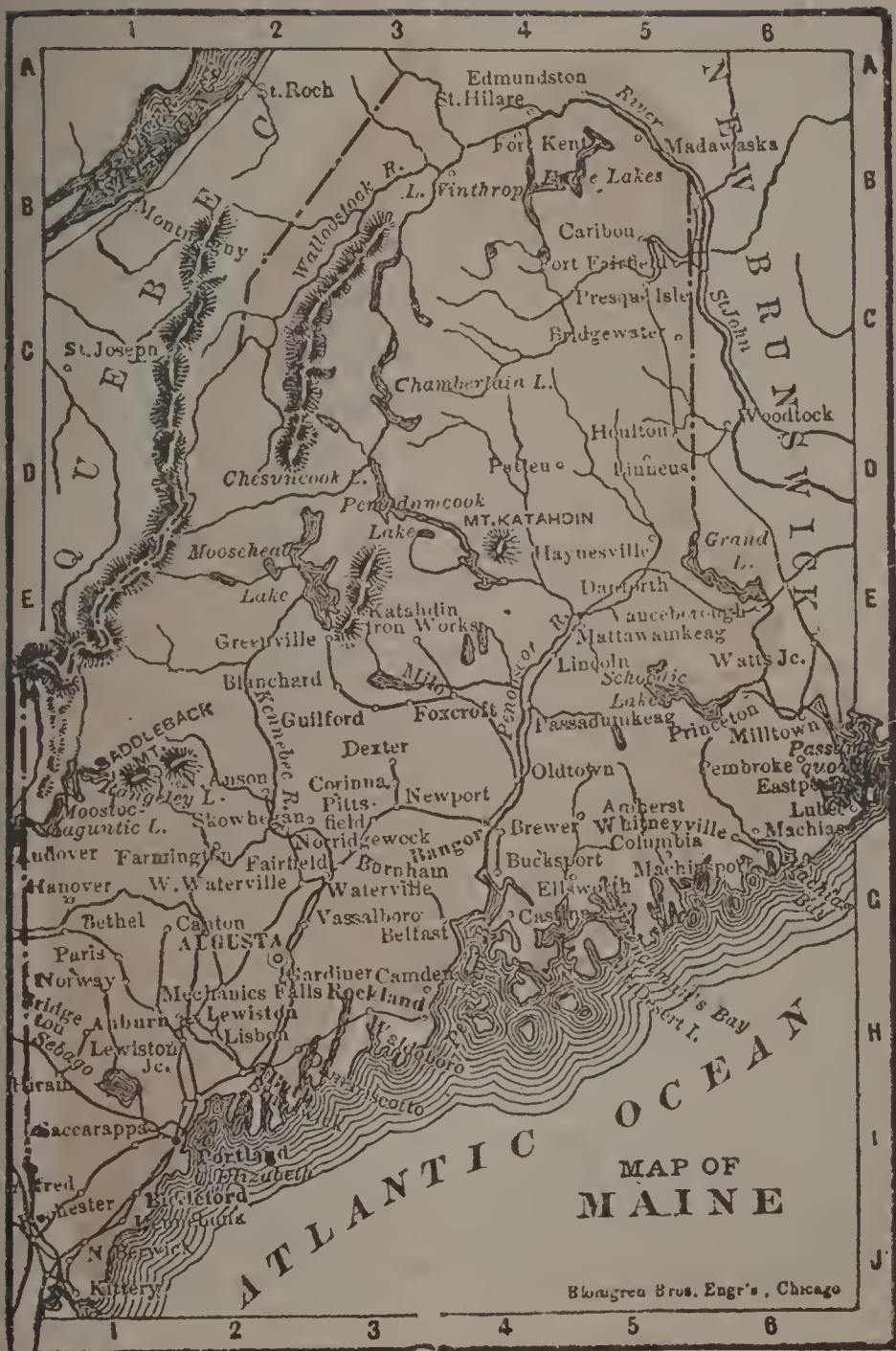


MAINE.

Called the "Pine Tree State" or "Lumber State;" originally included New Hampshire; settled by English 1607, French in 1613. Number counties 16, Union soldiers 70,107, miles of railroad 1,340. State elections second Monday in Sept., number senators 31, representatives 151, sessions biennial in odd-numbered years, meeting first Wednesday in Jan., terms of senators and representatives 2 years each. Number electoral votes 6, congressmen 4, paupers and Indians not taxed excluded from voting. Number colleges 3, system of common, high and normal schools excellent, school age 4-21 years, legal rate interest 6, by contract, any rate. POPULATION.—Census of 1890, 661,086. Indians—Penobscots 625. Passamaquoddies 502. Extreme length north and south 298 miles, width 210 miles, shore line about 2,480 miles, area 33,056 sq. miles, land 29,885 sq. miles, 21,155,840 acres, 37th of states and territories in size. Surface hilly, mountainous toward center. Highest point, Katahdin, 5,400 feet; largest island, Mount Desert, 92 sq. miles. Area of lakes and streams, one-thirteenth entire state. The soil is medium, only except on some of the streams, where it is rich. Hay the best crop. Wheat, oats, corn, hops, potatoes, buckwheat and the ordinary vegetables grow. Cattle do fairly, dairying pays. Half the state is forest of excellent timber. Cleared land averages \$15 and forest land \$14 per acre. Slate, copper and granite are found in large quantities. Winter average 29 deg., summer 67 deg., rainfall 45 inches, snow lies 80 to 130 days. Climate excellent, except for pulmonary troubles. Death rate low. Chief industries—Agriculture and kindred pursuits, lumbering, fisheries, \$3,620,000 yearly; quarrying, ship-building (380 establishments). Principal cities, census of 1890.—Portland (seaport) pop. 36,608, Lewiston 21,668, Bangor (port of entry) 19,090, Biddeford 14,418, Augusta (the capital) 10,521, Bath 8,713, Rockland 7,599.

Salaries of State Officers.

| | |
|-------------------------------------|-------------------------|
| Governor..... | \$2,000 |
| Secretary of State..... | 1,200 |
| Treasurer..... | 1,600 |
| Attorney General..... | 1,000 |
| Adjutant General..... | 900 |
| Superintendent Common Schools..... | 1,000 |
| Secretary Board of Agriculture..... | 600 |
| State Librarian..... | 600 |
| Chief Justice..... | 3,000 |
| Seven Associate Justices..... | 3,000 |
| Senators and representatives..... | \$150, mileage 20 cents |
| District Judge..... | 3,500 |
| Collector Internal Revenue..... | 2,500 |
| Collector Customs..... | 6,000 |
| Surveyor Customs..... | 4,500 |
| Pension Agent..... | 4,000 |

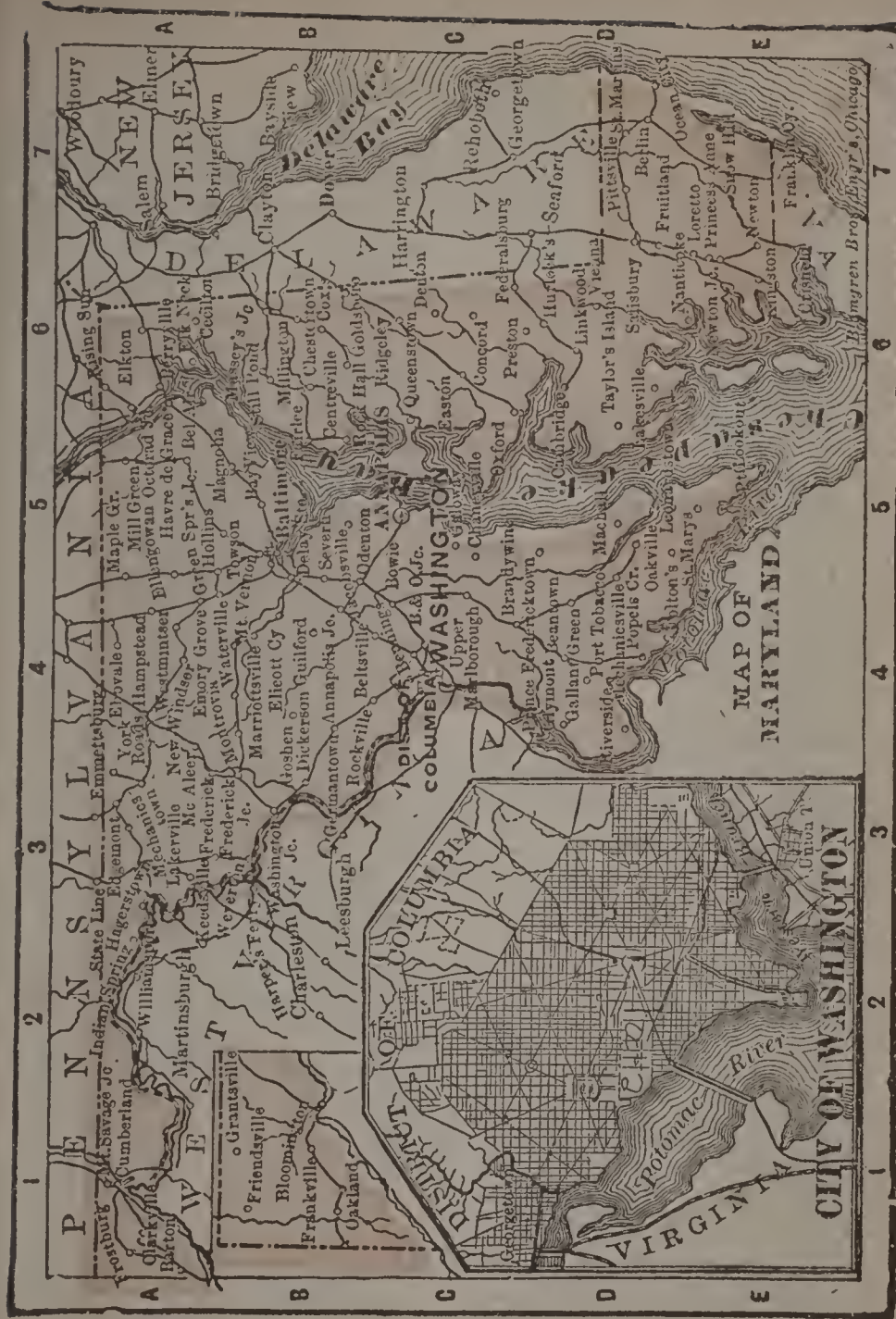


MARYLAND.

One of the thirteen original states. Baltimore laid 1730. Federal congress met at Annapolis 1783, when Washington resigned command of army. Federal constitution ratified April 28, 1778. Fredericktown and other places burned in war of 1812, and Fort McHenry bombarded. First blood of civil war shed at Baltimore. April 19, 1861. Legislature opposed war April 26, 1861, but passed resolutions favoring the South. Battle of Antietam Sept. 16 and 17, 1862. Slavery abolished 1864. Union soldiers furnished 46,638. No. counties 23. Miles railroad 1,225. All elections Tuesday after first Monday in Nov. Number senators 26, representatives 91, sessions biennial in even-numbered years, meet first Wednesday in Jan., and hold 90 days. Term of senators 4 years, of representatives 2 years. Number of electoral votes 8, congressmen 6. Insane, convicts and bribers excluded from voting. No. colleges 11, school age 5-20, school system fair. Legal interest 6 per cent, usury forfeits excess of interest. Population: census of 1890, 1,042,390. No. of slaves in 1860, 87,189. Topography, Area, Soil, Products, etc.—Length E. and W. 196 miles, width 8 to 122 miles, area 9,860 sq. miles. Acreage of state 6,310,400; water surface large. Western and northern sections mountainous and broken. Chesapeake Bay almost divides the state. Tide water coast nearly 500 miles. Chief navigable rivers Potomac, Susquehanna, Patuxent, Patapsco, empty into the bay. At the west is the Youghiogheny. Soil varies from very poor to very good. Cleared land averages \$22.50 and woodland \$14 per acre. The average value of latter lowered by mountain sections. Considerable good timber remains. Enormous coal fields west. Copper is found in Frederick and Carroll counties, iron ore in Allegheny, Anne Arundel, Carroll, Baltimore, Frederick and Prince George's counties. Great oyster, fish, fruit and vegetable producing state. Oyster beds most valuable in Union. Wheat, corn, oats, buckwheat and tobacco staple crops. Opportunities for capital are yet excellent. Climate mild, agreeable and healthful, some little malaria in lowlands. Temperature softened by ocean. Winter averages 37 deg. summer 78 deg. Rainfall 42 inches. Chief Cities, census of 1890, Baltimore, port of entry, pop. 433,547; Annapolis, capital, contains United States Naval Academy, 7,625; Cumberland, 10,130; Hagerstown, 11,698; Frederick, 9,621. Chief industries, agriculture and fruit-growing, oyster and other fishing, canning, coal, iron and copper mining, manufacturers of cotton goods, etc.

Salaries of State Officers.

□ Governor \$4,500, Secretary of state \$2,000, Treasurer \$2,500, Comptroller \$2,500, Attorney General \$3,000, Chief Justice \$3,500, Seven Associate Justices \$3,500, District Judge \$4,000, Senators and Representatives \$5 per day and mileage, two collectors internal revenue \$2,625 to \$4,500, Collector of Customs \$7,000, two collectors \$250 and \$1,200 fees, Auditor \$2,500, Naval Officer \$5,000, Surveyor \$4,500.



MASSACHUSETTS.

"Old Bay State," one of the thirteen original states. First settlement 1602, abandoned the same year. Explored 1614 by Capt. John Smith. First permanent settlement 1620. Pilgrims landed on Plymouth Rock Dec. 22. Boston settled 1630. First American newspaper, Boston, 1690. Massachusetts was active in bringing on Revolution. Boston massacre, March 5, 1770. Destruction of tea Dec. 16, 1773. Boston Port Bill passed March, 1774. Battle of Lexington, first blood of revolution. Ratified U. S. constitution Feb. 6, 1788. Union soldiers 146,730, besides sailors. Number counties 14. Miles railroad 2,083. All elections Tuesday after first Monday in Nov. Number senators 40, representatives 240, meeting first Wednesday in Jan. Yearly terms of senators and representatives 1 year. Number electoral votes 14, congressmen 12. Paupers, persons under guardians, non-taxpayers and men unable to read and write excluded from voting. School system excellent, attendance compulsory, age 5-15 years. Seven colleges, including Harvard. Legal interest 6 per cent, by contract any rate. Population—Census of 1890, 2,238,543. Females outnumber males. Indians 369. Length, N.-E. to S.-W., 162 miles: breadth 47 miles in western and 100 in eastern part; area of 8,040 square miles, 5,045,600 acres. Coast extensive and irregular with numerous good harbors. The Merrima only large stream entering sea within the state. The Taconic and Hoosac ridges traverse the state at the west. Saddle Mountain, 3,600 feet, the highest peak. The east and northeast divisions are hilly and broken, and the southeast low and sandy. Scenery very beautiful, especially in Berkshire hills. Soil generally light. Hay best crop. Wheat, oats, corn and vegetables grown. Forests practically exhausted. Cleared land averages \$80 and woodland \$45 per acre. Stone is found. No minerals mined. Elizabeth Islands, Martha's Vineyard, Nantucket and smaller islands to the south belong to the state. Winters severe and protracted, summers short and warm. Thermometer ranges from 10 deg. below to 100 deg.; averages, summer 73 deg., winter 24 deg. Snow falls October to April. Rainfall, including snow, 44 inches. Chief industries, agriculture and kindred callings, fishing for cod and mackarel (half the fishing vessels of the Union owned here), manufacture of cotton, woollen, worsted, silk, iron and steel goods, soap and implements, quarrying. Principal Cities: Census of 1890—Boston, 446,507; Lowell, 77,605; Lawrence and Fall River, famous for cotton manufactures, 44,559 and 74,351; Worcester, railroad and manufacturing center, 84,536; Cambridge, seat of Harvard College, 65,837; Lynn, famous for manufacture of boots and shoes, 55,684; New Bedford, greatest whaling port in the world, 40,705; Springfield, contains greatest arsenal in the United States, 44,164. Ports of entry 9.

(Salaries State Officers, page 439.)



MAPOF
MASSACHUSETTS

Long Island

Sound

Sound

Sound

Sound

MICHIGAN.

Called "Wolverine State." First settlement by Father Marquette, 1668, at Sault Ste. Marie. Admitted as state Jan. 26, 1837. Thirteenth state to enter Union. Received upper peninsula as compensation for disputed territory same year. Capital, Lansing. Union soldiers furnished \$7,364. Number counties 79. Miles railroad 6,918. All elections Tuesday after first Monday in November. Number senators 32, representatives 100, sessions of legislature biennial, in odd-numbered years, meeting first Wednesday in January; terms of senators and representatives 2 years each, number electoral votes 13, number congressmen 11. Duellists excluded from voting. Number colleges 9, efficient public schools, school age 5-20 years. Legal interest 7 per cent, by contract 10 per cent, usury forfeits excess of interest. POPULATION, census of 1890, 2,093,889. Extreme length lower peninsula north and south 278 miles, breadth 260 miles. Extreme length upper peninsula east and west 320 miles, width 24 to 165 miles, area 57,430 sq. miles, or 36,755,200 acres. Length shore line 2,000 miles. Lower peninsula consists of plains and table lands, heavily timbered with pine and hardwoods and small prairies. Soil generally good, but patches of sand occur. Fruit raising, especially apples, peaches and grapes, very successful. All cereals make good crop, except corn at north. Staples, wheat, corn, oats, buckwheat, potatoes, barley, etc. Upper peninsula broken, rocky and almost mountainous, rising at west to 2,000 feet above sea. Western portion mining region, eastern portion favorable to agriculture. Rivers, inlets and small lakes numerous. Water good and well distributed. Copper, valuable iron, coal and salt abundant. Timber yet in immense tracts of virgin pine and hardwoods. State ranks first in copper, lumber and salt, second in iron ore, third in buckwheat, fifth in sheep, hops and potatoes. Cleared land averages \$20 per acre, forest \$10. CLIMATE.—Temperature averages at Detroit winter 30 deg., summer 70 deg.; at Sault Ste. Marie, winter 23 deg., summer 65 deg. Rainfall at Detroit 30 inches, at Sault Ste. Marie 24 inches. Health excellent. Temperature at Marquette averages about 3 deg., lower than at Sault Ste. Marie.

CHIEF CITIES, CENSUS OF 1890.—Detroit, 205,669; Grand Rapids, 64,147; Lansing (capital), 12,630; Bay City, 27,826; East Saginaw, 46,137; Jackson, 20,779; Muskegon, 22,668; Saginaw, 46,215; Alpena, 11,228; Battle Creek, 13,090; Flint, 9,845; Kalamazoo, 17,857; Menominee, 10,606; Port Huron, 13,519; West Bay City, 12,910. Detroit, Marquette. Port Huron, Grand Haven ports of entry.

CHIEF INDUSTRIES.—Lumbering, mining, farming, fruit raising, manufacturing, fishing, etc.

(Salaries State Officers, page 439.)

MAP OF MICHIGAN



MINNESOTA.

"Gopher state." Explored by Fathers Hennepin and La Salle, 1680, via Mississippi river to Falls St. Anthony. Admitted as state, 1858. Foreign immigration immense. Number Union soldiers furnished, 25,052. Number counties, 80. Miles railroad, 5,482. All elections Tuesday after first Monday in November; number senators, 47; representatives, 103; sessions of legislature, biennial, in odd-numbered years, meeting Tuesday after first Monday in January; holding 60 days; term of senators, 4 years; representatives, 2 years. Number electoral votes, 7; congressmen, 5; idiots, insane and convicts not voting. Number colleges, 5; school age, 5-21; school system, first-class. Legal interest rate, 7%; by contract, 10%; usury forfeits excess over 10%.

Population, census of 1890, 1,301,826; Indians, 2,300. Length N. and S. 378 miles, average width 261 miles, area 79,205 sq. miles, 50,691,200 acres. Surface rolling plain 1,000 feet above sea level, except at N. E., where are a series of sand hills called "Heights of Land," 1,600 feet high. It is the state of small lakes, including over 7,000, varying from a few rods to 32 miles across. In one of these, Itasca, the Mississippi rises and flows 800 miles through the state. The other principal rivers are the Minnesota, Red River of the North, and the St. Louis. Small streams and lakes make water plentiful. The scenery is picturesque and beautiful. The soil is splendid, as a rule, and the accessibility to market and general attractions render the state especially favored by agriculturists. The forests of the state are small (2,000,000 acres), but in parts are rich in fine timbers. Two-thirds of the state is unoccupied. Cleared land averages \$12.50 per acre and woodland \$8. Wheat is the great crop. Corn, oats, barley, hay and dairy products are also staples. State ranks fourth in wheat.

CLIMATE.—Healthful. Air pure and dry, summers warm, averaging 68-70 deg.; winters cold, averaging 9-24 deg. Rainfall, 36 inches, chiefly in summer. Snowfall medium. The dryness mitigates the cold in winter. CHIEF CITIES. CENSUS of 1890.—Pembina, port of entry on Red river. St. Paul, capital, 133,156; Minneapolis, 164,738; Duluth, 32,725; Winona, 18,208; Stillwater, 11,239. CHIEF INDUSTRIES.—Agriculture, dairying, milling, etc.

Salaries of State Officers.

| | |
|---|---------|
| Governor..... | \$3,800 |
| Lieutenant Governor..... | 600 |
| Secretary of State..... | 1,800 |
| Treasurer..... | 3,500 |
| Auditor..... | 3,000 |
| Attorney General..... | 2,500 |
| Superintendent of Public Instruction..... | 2,500 |
| Adjutant General..... | 1,500 |
| Public Examiner..... | 3,000 |
| Insurance Commissioner..... | 2,000 |



MISSISSIPPI.

Indian name meaning Father of Waters. "Bayou State." Visited by De Soto 1542, by LaSalle 1682. Settled Biloxi, 1699, by M. de Iberville. Formed a part of the territory of Louisiana, and belonged to France. Admitted as a state Dec. 10, 1817. Seventh state admitted. Capital fixed at Jackson, 1822. Shiloh the most notable battle of the rebellion in the state. State re-entered Union 1870. Number counties 74, number miles of railroad 2,397. State officers elected quadrennially, and legislature every two years, all elections Tuesday after first Monday in Nov., sessions of legislature biennial, in even-numbered years, meeting Tuesday after first Monday in Jan., number senators 37, representatives 120, term of senators 4 years, of representatives 2 years, number electoral votes 9, congressmen 7. Idiots, insane and criminals excluded from voting. Number colleges 3, school age 5-21, school system fair. Legal interest 6 per cent, by contract 10 per cent, usury forfeits excess of interest. Miles railroad 1844, 26. Population, census 1890—1,289,600. No. slaves in 1860, 436,631. Greatest length N. and S. 364 miles, average width 143 miles, area 46,340 sq. miles, 29,657,600 acres. Coast line, including islands, 512 miles. Harbors, Biloxi, Mississippi City, Pascagoula and Shieldsburg. Surface undulating with a gradual slope from elevation of 700 feet at N. E., W. and S. to the Mississippi and Gulf. Some hills reach 200 feet above surrounding country. From Tenn. line S. to Vicksburg. Mississippi bottoms wide, flat, with more or less swamp, and covered with cypress and oak. Soil an inexhaustible alluvium. Soil light but productive, at south sandy with pine growth. Cotton prolific. Staple crops, cotton, rice, sugar, molasses, tobacco, corn, sweet potatoes, grapes for wine. Fruits and vegetables are splendid crops, but are neglected. Forest area large, pine, oak, chestnut, walnut and magnolia grow on uplands and bluffs, long-leaved pine on islands and in sand. Lumbering important industry, mules raised with great success. State ranks second in cotton, fifth in rice. Oyster and other fisheries valuable. Cleared land averages \$7.50 per acre, woodland \$3. Climate mild, snow and ice unknown. Summers long and warm, July and Aug. hottest months. Temperature averages summer 80 deg., winter 50 deg. Rainfall 46 in. at north, 58 in. at south. Highlands very healthy. Malaria in bottoms. CHIEF CITIES, census of 1890—Jackson (capital), 6,041; Natchez, 10,132; Vicksburg, 13,298; Meridian, 10,889; Columbus, 4,552; Yazoo City, 5,247. LEADING INDUSTRIES.—Agriculture, lumbering, fishing and canning.

Salaries of State Officers.

Governor \$4,000, Lieutenant Governor \$2,000, Secretary of State \$2,500, Treasurer \$2,500, Auditor \$2,500, Attorney General \$2,500, Superintendent of Public Education \$2,000, Commissioner of Agriculture \$1,000, Land Commissioner \$1,000.



MISSOURI.

Name Indian, means "Muddy River." Settled first at St. Genevieve. Organized as territory under present name 1812, included Arkansas, Indian Territory, etc. Admitted March, 1821. Eleventh state admitted. Admission aroused much discussion. "Missouri Compromise" effected and state permitted to retain slavery. State divided on secession and was scene of perpetual internal warfare. Martial law declared Aug., 1862. Union soldiers furnished, 109,111. Number counties 115. Miles railroad 5,978. State officers elected quadrennially, and legislature every 2 years. All elections Tuesday after first Monday in Nov., number senators 34, representatives 141, sessions of legislature biennial in odd-numbered years, meeting Wednesday after Jan. 1, holds 70 days, term of senators 4 years, representatives 2 years. Number electoral votes 16, congressmen 14. United States army and inmates of asylums, poorhouses and prisons excluded from voting. Number colleges 17, school age 6-20, school system good, endowment large. Legal interest rate 6 per cent, by contract 10 per cent, usury forfeits entire interest. Population, census of 1890—2,679,184.

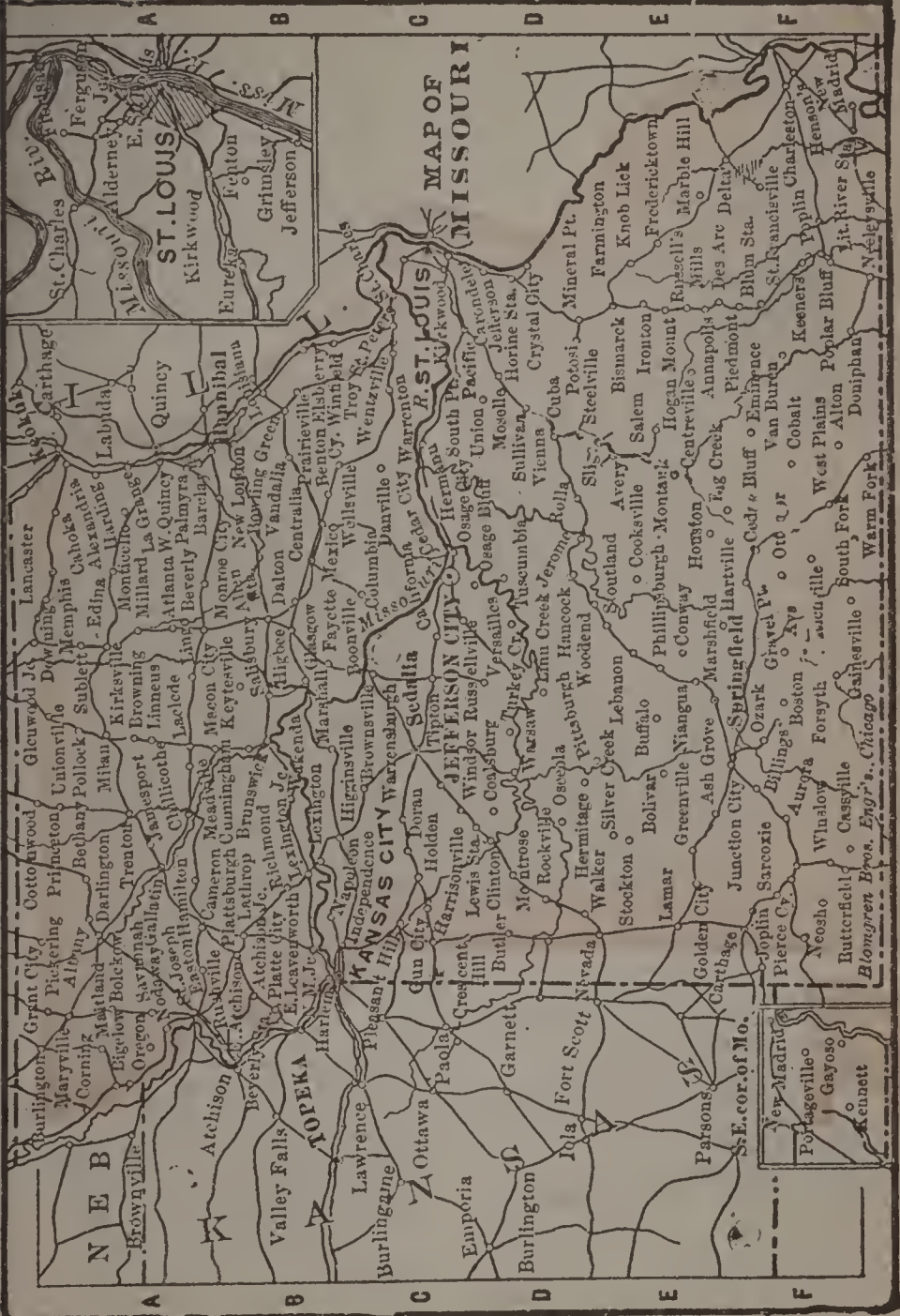
Length N. and S. 575 miles. Average width 246 miles. Area 68,735 sq. miles, 43,990,400 acres. Soil generally good. South the surface is broken with hills, sometimes 1,000 feet high. The most noted, Iron Mountain and the Ozarks. West of Ozarks is a prairie region with wide, deep, fertile valleys. Entire area well watered by small streams, springs, etc. Chief crops, corn, wheat, oats, potatoes, tobacco. Fruits do splendidly. Peaches especially fine. Vegetable gardening successful. Improved land averages \$12, unimproved \$7 per acre. Coal, iron, marble, granite, limestone, lead and copper found in enormous deposits. Lead area 5,000 sq. miles. Forests magnificent. Growth walnut, poplar, oak and the hardwoods, grazing a leading business both in extent and profit. Stock of all kinds raised with success. State ranks first in mules, third in oxen, hogs, corn and copper, fifth in iron ore.

Climate variable, with sudden changes, but generally pleasant and healthy. Summers are long and warm, but not enervating. Winters moderate, with occasional severe days. Average temperature, summer 76 deg., winter 39 deg. Rainfall greatest in May, average 34 inches.

CHIEF CITIES, census of 1890.—St. Louis, largest city west of the Mississippi, port of entry and great commercial and manufacturing point, 460,357. Capital, Jefferson City, 6,732. Pop. St. Joseph, 52,811; Kansas City, 132,416; Springfield, 21,842; Hannibal, 12,816.

LEADING INDUSTRIES.—Agriculture, mining, manufacturing, quarrying, grazing, fruit and vegetable growing, lumbering, etc.

(Salaries of State Officers, page 439.)



MAP OF
MISSOURI

ST. LOUIS

ST. LOUIS

TOPEKA

S.E. cor. of Mo.

New Madrid
Portageville
Gayoso
Kennett

MONTANA.

Gold discovered 1860. Formed part of Idaho, organized 1863. Organized as territory May, 1864. Custer massacre June 25, 1876, 350 men of the 7th United States Cavalry annihilated by Sioux under Sitting Bull, on the Little Big Horn river. Number counties 14. Miles of railroad 2,001. All elections Tuesday after first Monday in November. Number senators 12, representatives 24. Sessions of legislature biennial, in odd-numbered years, meeting second Monday in January, holds 60 days, terms of senators and representatives 2 years each. School age 4-21 years, graded schools in Deer Lodge City, Virginia City and Helena. School lands reserved for sale when territory becomes state valuable and extensive. Legal interest 10 per cent, by contract any rate.

POPULATION.—Census of 1890—132,159. Extreme length E. and W. 540 miles, average width 274 miles, area 145,310 sq. miles, 92,998,400 acres, two-fifths good farm land, of which about 4,000 acres is cultivated. Three-fifths of territory rolling plains, rest mountainous. Surface fairly supplied with small streams. Timber supply ample. Soil good. Immense area of arable land. Wheat best crop, oats, potatoes, hay, also staples. To cold for corn. Area grazing land, over two-thirds territory. Grazing interest great. Splendid grazing grounds yet untaken. Mineral wealth great. Ranks fifth in silver and in gold. Climate dry. Rainfall about 12 inches. Warmer than same latitude farther east. Snows heavy in mountains, light in valleys and on plains. Temperature averages summer 62 deg., winter 18 deg. Colder in mountains. Health excellent.

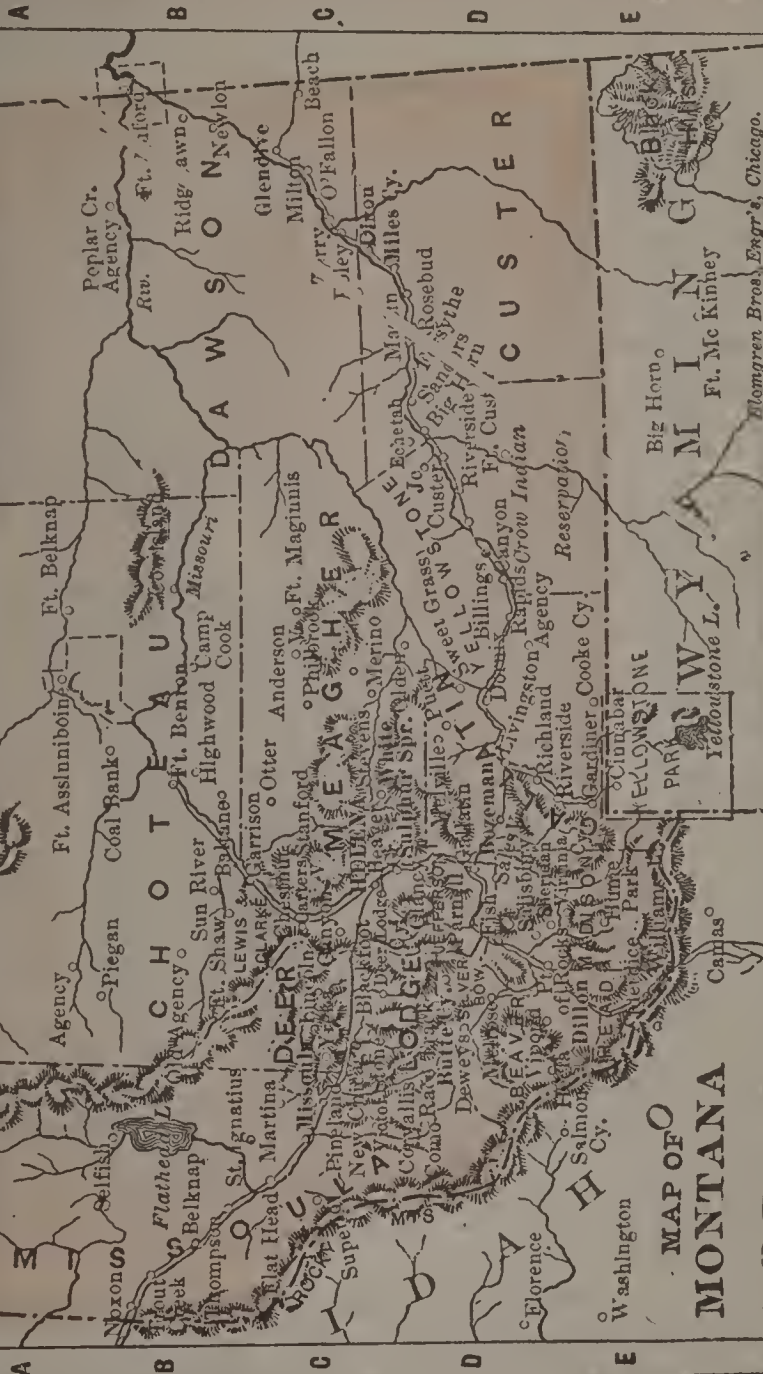
CHIEF CITIES.—Three United States districts, court held twice a year at Helena, twice at Virginia City, (about) 4,000; and three times at Deer Lodge, pop. 1,500. Helena pop. 13,834, capital and most important town.

LEADING INDUSTRIES.—Mining, lumbering, grazing, agriculture, smelting, etc.

Salaries of Territorial Officers.

| | |
|---|---------|
| Governor..... | \$2,600 |
| Secretary..... | 1,800 |
| Treasurer..... | 1,500 |
| Auditor..... | 1,500 |
| Superintendent of Public Instruction..... | 1,200 |
| Chief Justice..... | 3,000 |
| Two Associate Justices..... | 3,000 |
| Senators and Representatives...\$4 per day and 20 cents mileage | |
| Surveyor General..... | 2,500 |
| Chief Clerk..... | 1,800 |
| Chief Draftsman..... | 1,600 |
| Collector of Internal Revenue..... | 2,500 |

D O M I N I O N O F C A N A D A



MAP OF MONTANA

Washington

Elmore

Beaver

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Helena

Missoula

Yellowstone

Shoshone

Nez Perce

Flathead

Blackfoot

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Yellowstone

Shoshone

Nez Perce

Flathead

Blackfoot

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Yellowstone

Shoshone

Nez Perce

Flathead

Blackfoot

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Yellowstone

Shoshone

Nez Perce

Flathead

Blackfoot

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Yellowstone

Shoshone

Nez Perce

Flathead

Blackfoot

Bozeman

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Great Falls

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Missoula

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Missoula

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Great Falls

Yellowstone

Shoshone

Nez Perce

Flathead

Blackfoot

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

Helena

Missoula

Bozeman

Butte

Great Falls

NEBRASKA.

Name Indian, means "Shallow Water." Nebraska Territory organized May, 1854. Few settlements till 1864. Idaho cut off March, 1863, and present boundaries fixed. Bill to admit July, 1866, unsigned by President Johnson, and another January, 1867, vetoed. Bill passed over veto February, 1867. Admitted that year. Lincoln capital. Union soldiers furnished, 3,157. Number counties 74. Miles of railroad 1865, 122, 1890, 5,124. All elections Tuesday after first Monday in November, number senators 33, representatives 100, sessions biennial, in odd-numbered years, meeting first Tuesday in January, holding 40 days, terms of senators and representatives 2 years each, number electoral votes 5, number congressmen 3. U. S., army, idiots and convicts excluded from voting. Number colleges 9, school age 5-21, school system superior, school endowments liberal. Legal interest, 7 per cent, by contract 10 per cent, usury forfeits interest and cost.

Population, census of 1890, 1,058 910.

TOPOGRAPHY, AREA, SOIL, PRODUCTS, ETC.--Extreme length E. and W. 424 miles, width 210 miles, area 76,185 sq. miles, 48,755,000 acres. Surface a vast plain, undulating gently, and principally prairie with a few low hills. At extreme northwest are spurs of the Rocky mountains, and Black Hill country begins, general slope from W. to E., Missouri, Platte, Niobrara, Republican and Blue, principal rivers, and are fed by numerous smaller streams. Southern portion of state peculiarly favorable to all kinds of crops, western half magnificent series of pastures and best suited to grazing. Whole eastern two-fifths a great natural garden. Corn the great crop; wheat, oats, hay, rye, buckwheat, barley, flax, hemp, apples, plums, grapes, berries, staples and flourish. Cattle raising of vast importance and magnitude. Good herd laws. No important minerals. Manufacturing growing wonderfully. Improved land averages \$9, unimproved \$5 and woodland \$18 per acre.

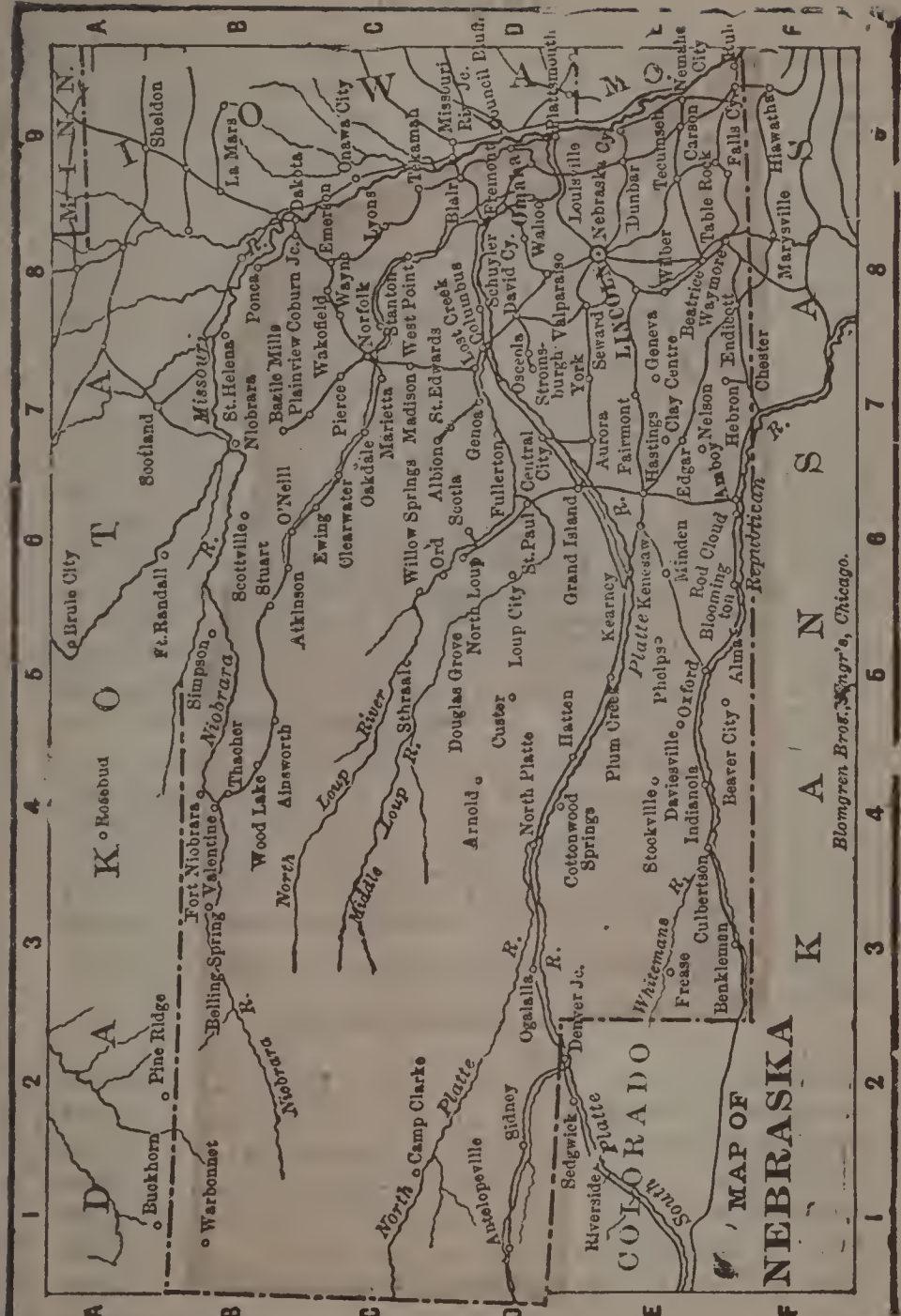
Climate dry, salubrious and free from malaria. Temperature averages, summer, 73 deg., winter 20 deg. Rainfall east of 100th meridian, including snow, 25 inches, heaviest in May. At west, precipitation falls to 17 inches. Rainfall gradually increasing.

CHIEF CITIES, CENSUS OF 1890.—Omaha, U. S. port of delivery, commercial center, 139,526; Lincoln contains State University, 55,491; Plattsmouth, 8,403; Nebraska City, 11,472; Hastings, 13,793; Fremont, 6,654; Columbus, 3,118.

LEADING INDUSTRIES.--Agriculture, cattle-raising, dairying, manufacturing, etc.

Salaries of State Officers.

Governor \$2,500, Lieutenant-Governor \$6 a day, Secretary of State \$2,000, Treasurer \$2,500, Auditor of Public Accounts \$2,500, Attorney-General \$2,000, Superintendent of Public Ins. \$2,000.



MAP OF
NEBRASKA

Blomgren Bros., Engrs., Chicago.

NEVADA.

"Sage Hen State." First settlements in Washoe and Carson valleys 1848. Gold discovered 1849, silver 1859. Territory organized March, 1861. Admitted as state October, 1864. Number counties 15. Miles railroad 916. Governor and state officials elected quadrennially, and legislature every 2 years, on Tuesday after first Monday in November; number senators 20, representatives 40, sessions of legislature biennial, in odd-numbered years, meeting first Monday in January, holding 60 days. Term of senators 4 years, of representatives 2 years. Idiots, insane and convicts excluded from voting. School age 6-18 years. Legal interest rate 10 per cent, by contract any rate.

Population, census of 1890—45,761.

Extreme length N. and S. 485 miles, width 320 miles, area 109,740 sq. miles, 70,223,000 acres. Lake Tahoe, 1,500 feet deep, 10x22 miles in area and 9,000 feet above sea, temperature year round 57 deg. Many mineral springs, warm and cold. Great part of surface unavailable for cultivation. Considerable areas of grazing land; many valleys, rich, easily worked and prolific soil. Corn, wheat, potatoes, oats and barley, staple crops; horses, mules, cattle, hogs and sheep do well. Forests valuable. Mineral resources enormous. Comstock lode supposed to be richest silver mine in the world; Eureka one of the most productive. Rich in lead and copper; zinc, platinum, tin and nickel, plumbago, manganese, cobalt, cinnebar, etc., found. Extensive deposits of borax. Coal and iron. Ranks second in gold, fourth in silver. Kaolin, building stones, slate, soda and salt are obtained. Little land improved.

Climate mild in valleys; little snow except on mountains. At north mercury sometimes falls to 15 deg. below zero; air bracing, health good. Extremes of cold unknown. Summer heat occasionally reaches above 100 deg. Temperature averages, summer 71 deg., winter 36 d. Rainfall slight, chiefly in spring.

Chief cities, census of 1890—Virginia City, chief commercial center, pop. 6,377; Carson City (capital), and contains a branch mint, pop. 4,030.

Leading Industries—Mining, reducing ores, lumbering, agriculture, etc.

Salaries of State Officers.

| | |
|------------------------------------|---------|
| Governor..... | \$5,000 |
| Lieutenant Governor.... | 3,000 |
| Secretary of State..... | 3,000 |
| Treasurer... .. | 3,000 |
| Comptroller..... | 3,000 |
| Attorney General..... | 3,000 |
| Superintendent of Public Inst..... | 2,400 |

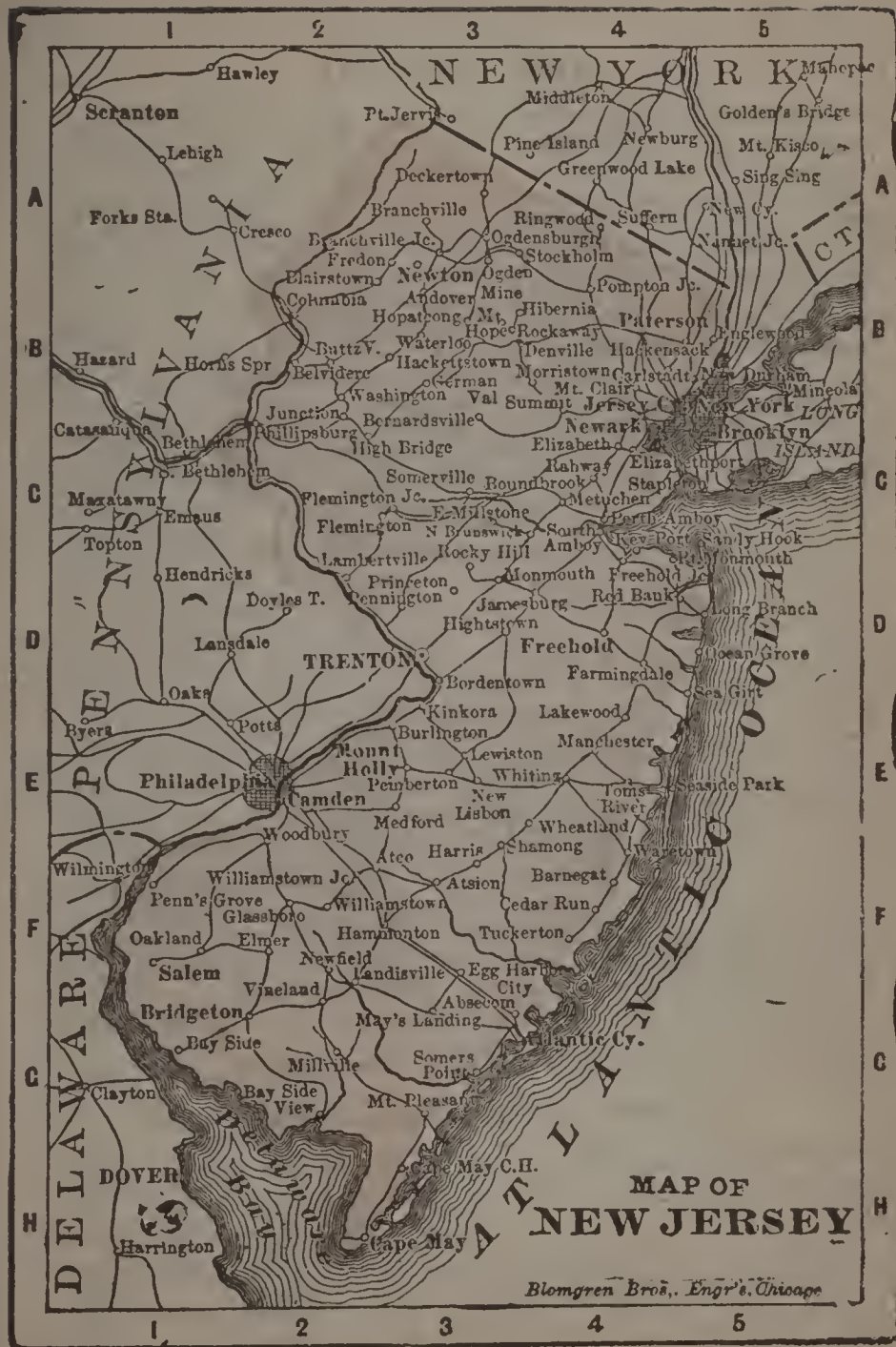


NEW JERSEY

One of the thirteen original states. Battles of Trenton, Princeton, Monmouth and others fought within its borders during the Revolution. State Constitution adopted 1776, revised 1844, and amended in the present decade. United States Constitution unanimously adopted Dec. 1787. Capital established at Trenton 1790. A slave state till 1860, when but 18 slaves remained, and it was counted a free state. Union soldiers furnished, 75,814. State contains 21 counties, and has 1,890 miles railroad. State elections annual, same date as congressional and presidential. Number of senators 21, representatives 60, meeting of legislature 2d Tuesday in January. Term of senators 3 years, representatives 1 year. Number of electoral votes 9, congressmen 7. Paupers, idiots, insane and convicts excluded from voting. Number colleges 4, schools good, school age 5-18. Legal interest 6 per cent, usury forfeits entire interest. Population, census of 1890—1,444,933. Miles of railroad in 1890 2,036. Length north and south 158 miles, width 38 to 70 miles, area 7,455 sq. miles, or 4,771,200 acres. Forty-third state in size. Atlantic coast 128 miles, Delaware Bay coast 118 miles. The famous palisades of the Hudson at the northeast are 600 feet high. Toward center state slopes to a rolling plain, and at south becomes flat and low. Hudson river forms the eastern border. Delaware Water Gap and Falls of Passaic are the natural wonders of the state. Cleared land averages \$80 and woodland \$60 per acre. Hay the best crop. Other staple crops are potatoes, wheat, corn, rye, buckwheat, cranberries, fruit and garden produce. Little woodland valuable for timber remains. Iron and fertilizing marls are abundant. Climate variable; temperature averages, summer 68 deg. to 75 deg., winter 31 deg. to 38 deg. Range of temperature from about zero to 100 deg. Rainfall, including snow, 46 inches, reaching 50 inches in the highlands, and falling to 40 inches at the south. Highlands and seashore healthy. Ague and malarial fevers in the lowlands. **PRINCIPAL CITIES**, census of 1890.—Newark, Perth Amboy, Great Egg Harbor, Tuckerton, Bridgeton and Lumberton are ports of entry. Newark pop. 181,518; Jersey City 163,987; Trenton (capital) 58,488; Paterson 78,353; Elizabeth 37,670; Hoboken 43,561; Camden 58,274; Atlantic 13,038; Bayonne 18,996; New Brunswick 18,459; Passaic 13,027; Plainfield 11,250; Bridgeton 11,471. **CHIEF INDUSTRIES**.—Manufacture of fabrics, jewelry, clay wares and brick, flour, crystals, fishing, oyster fishing, gardening, agriculture, marl and iron ore digging, etc.

SALARIES OF STATE OFFICERS.

Governor \$5,000, Secretary of State \$6,000, Treasurer \$4,000, Comptroller \$4,000, Attorney General \$7,000, Superintendent of Public Instruction \$3,000, Adjutant General \$1,200, Librarian \$1,500, Chief Justice \$7,500. Eight Associate Justices \$7,000, Chancellor \$10,000, Senators and Representatives \$500 a year. District Judge \$3,500, Superintendent of Life Saving Service \$1,800, Thirty-nine Keepers \$700.



NEW MEXICO.

Name supposed to be of Aztec god. Settled earlier than any other part U. S. Permanent settlement, 1596. Santa Fe, then an Indian town, chosen as a seat of Spanish government. The natives were enslaved and forced to work in the fields and mines. Organized as Territory, 1850. Santa Fe captured by Confederates, 1862, but soon abandoned. Number counties 13. All elections, Tuesday after first Monday in Nov. Number senators 12, representatives 24, sessions of legislature biennial, in even numbered years, meeting first Monday in Jan., held 60 days. Terms of senators and representatives 2 years. School age, 7-18 years. Legal interest rate, 6 per cent, by contract 12 per cent. Miles railroad in 1890, 1,326.

Population, census of 1890.—153,593. Male 64,496, native 111,514, white 108,721, Indians 9,772. Estimated increase, 1885, 21 per cent. Average length N. and S., 368 miles, width 335 miles. Area 122,000 sq. miles, 78,400,000 acres. Elevation 3,000 to 4,000 feet. Mountain peaks 12,000 feet. The staked plain, an elevated region, unwatered and without wood, extends into the southeastern part of the territory. No streams are navigable in the territory. Timber scarce, except in few sections. The mountains are clothed with pine, spruce and fir. Cedar grows in foothills, and cottonwood and sycamore in valleys. Soil rich where water can be had for irrigation or on streams. Corn, wheat, oats, alfalfa, grapes, vegetables, especially onions and root crops and semi-tropical fruits are prolific. Sheep raising very profitable. Grazing interests extensive. Gold found in Grant, Lincoln, Colfax and Bernalillo counties, rich copper mines in Bernalillo county, and in the Pinos Altos region. Zinc, quicksilver, lead, manganese and large deposits of coal have been found. Irrigable surface, 7,000 sq. miles.

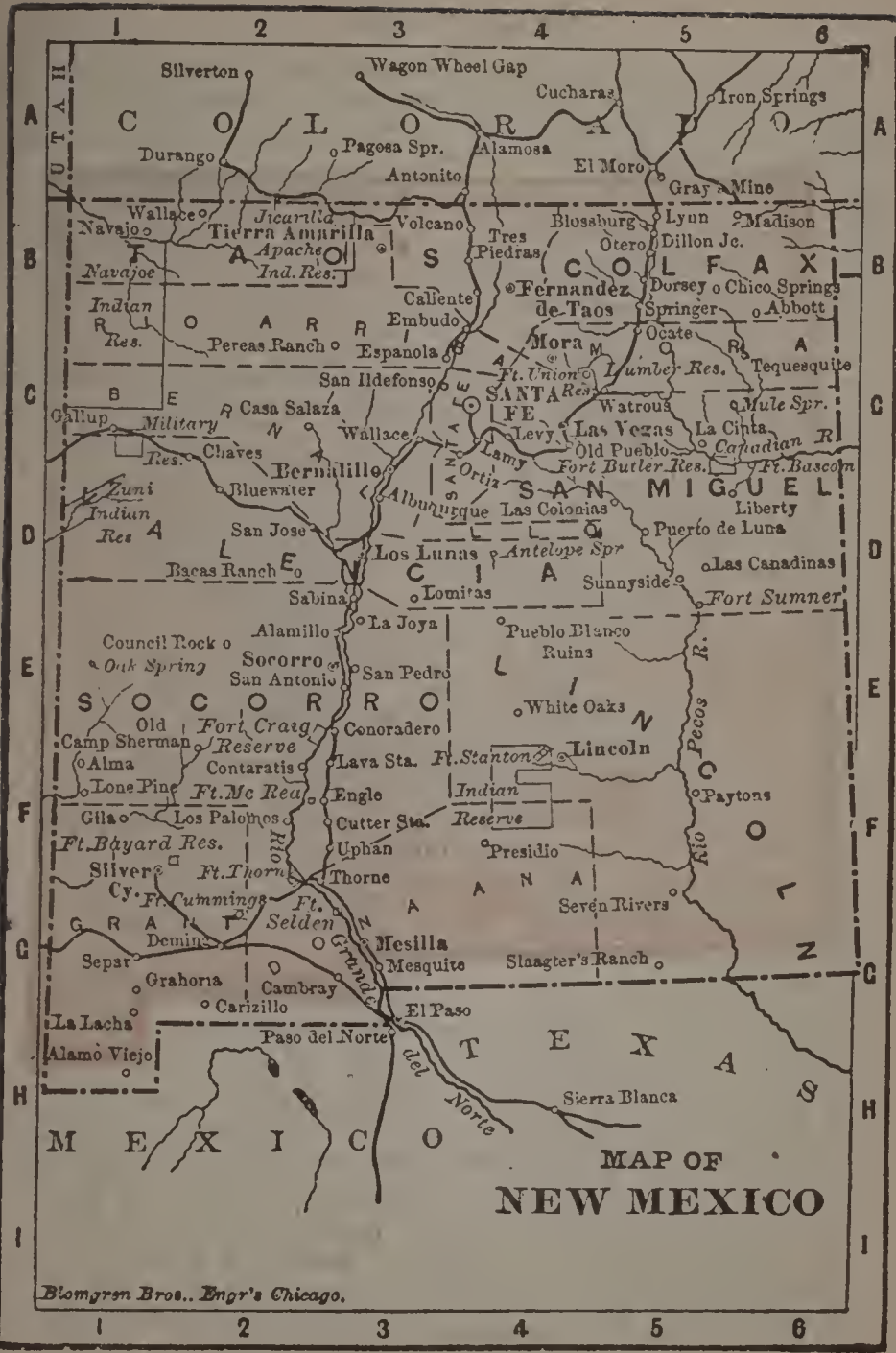
Climate varies with different elevations. Temperature averages, summer, 70 deg., winter, 33 deg. Range of temperature, 4 deg. below zero to 90 deg. above. It is much warmer than the average in the lower altitudes, and colder in the higher. Air dry, rarified and pure. Rainfall, 9 to 11 inches.

CHIEF CITIES.—Santa Fe, capital, pop. 6,713. Las Vegas, Silver City and Albuquerque.

LEADING INDUSTRIES.—Mining, stock-raising and agriculture.

SALARIES OF TERRITORIAL OFFICERS.

| | |
|-----------------------------------|---------|
| Governor..... | \$2,600 |
| Secretary..... | 1,800 |
| Treasurer..... | 1,000 |
| Auditor..... | 1,000 |
| Commissioner of Immigration | 900 |
| Librarian..... | 600 |
| Chief Justice..... | 3,000 |
| Two Associate Justices..... | 3,000 |

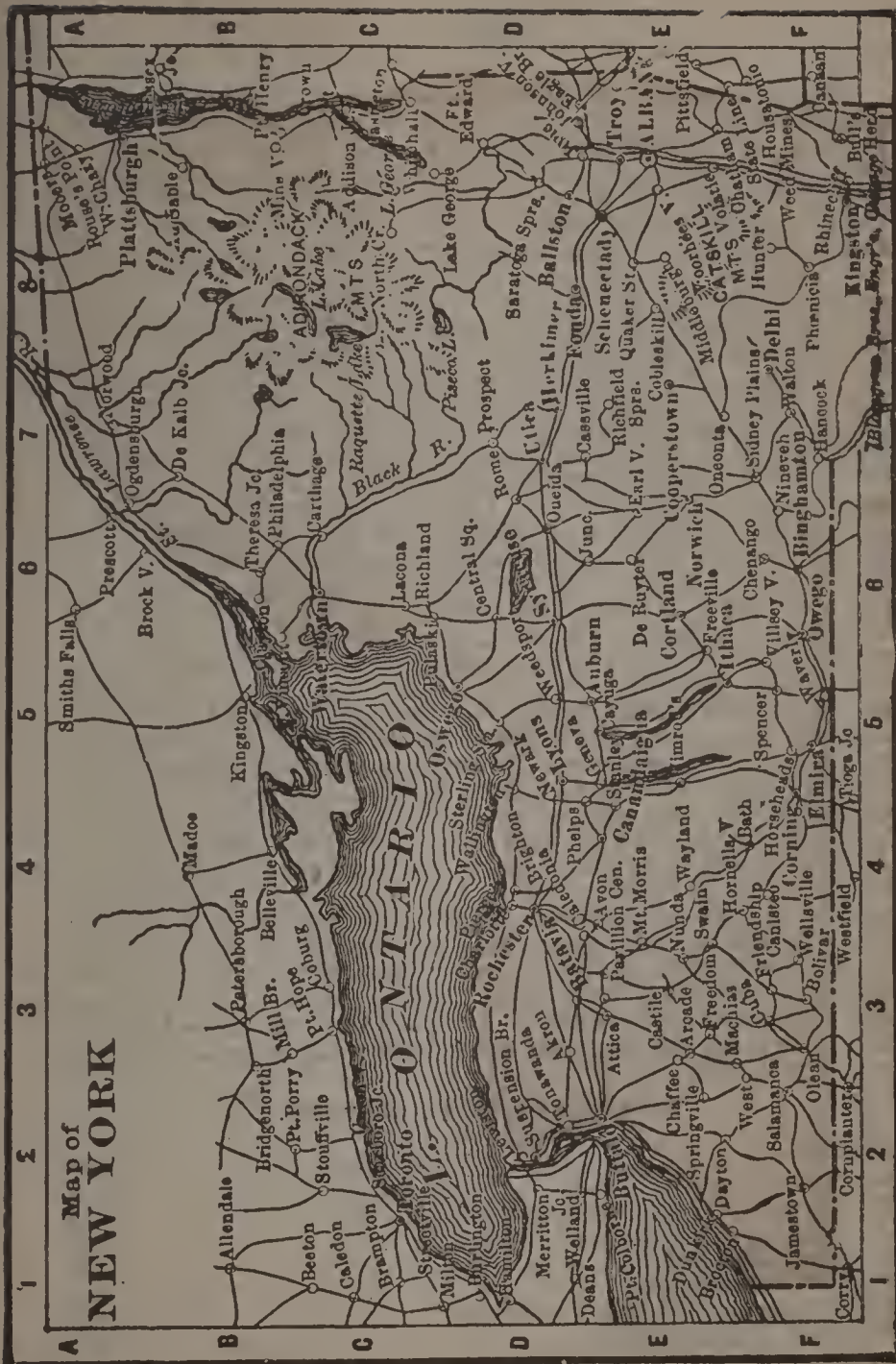


NEW YORK.

One of the 13 original states, "Empire State." Explored by Henry Hudson, Sept., 1609. Samuel de Champlain discovered and named Lake Champlain. Holland owned the territory. The Dutch settled on Manhattan Island, 1614. Country called "New Netherlands." Manhattan Islands purchased from Indians for \$24, 1626. Indian troubles 1640-45. Swedish settlements on the Delaware incorporated with the New Netherlands, 1655. England claimed the country as part of Virginia, captured (Manhattan New Amsterdam) Aug., 1664, and named it New York. New York the battle-field of the French-English war 1754 was prominent in the Revolution. West point fortified 1777-78. New York city capital 1784 to 1797. Slavery abolished 1817. Union soldiers furnished, 448,850; number counties 60, custom districts 10, first railroad Albany to Schenectady 1831, miles of railroad 7,709, miles canal 900. State officers elected every 4 and senators (32 in number) every 2 years, representatives (125 in number) yearly, on same day as presidential election. Legislature meets first Tuesday in Feb. yearly, congressmen 34, presidential electors 36. Election betterers and bribers and convicts excluded from voting. School system superior, includes 28 colleges. School age 5 to 21 years. Legal interest 6 per cent, usury forfeits principal and interest. Population, census of 1890—5,997,853. Extreme length E. and W. 410 miles, extreme width 311 miles, area 47,620 sq. miles, 30,476,800 acres, water frontage 900 miles, surface varied. The Hudson rising in the Adirondacks, and flowing south over 300 miles to New York bay, is the chief stream. The Allegheny and its tributaries drain the S. W., and the Susquehanna the southern central division. The Mohawk is the chief affluent of the Hudson. The state is noted for the beauty of its lakes. Long, Manhattan and Staten Islands form important divisions of the state. The soil is also varied, and agriculturally the state is very rich. Cleared land averages \$60 and wooded \$40 per acre. Considerable forests yet remain. The production of corn, wheat and dairy products is very large. The state ranks first in value of manufactures, soap, printing and publishing, hops, hay, potatoes, buckwheat and milch cows, second in salt, silk goods, malt and distilled liquors, miles railway and barley, third in agricultural implements, iron ore, iron and steel, oats and rye. Climate diverse, mean annual temperature for the state 47 deg. In the Adirondacks the annual mean is 39 deg., in the extreme south it is 50 deg., average rainfall 43 in. including snow, the fall being greatest in the lower Hudson valley, and smallest (32 in.) in the St. Lawrence valley. Range of temperature 10 deg. below to 100 above zero. CHIEF CITIES, census of 1890—New York City, pop. 1,513,501; Brooklyn 804,377; Buffalo "Queen City of the Lakes" 254,457; Rochester 138,327; Syracuse 87,877; Albany (capital) 94,640; Troy 60,699; Binghamton 35,093; Auburn 25,877. CHIEF INDUSTRIES.—Manufacturing of all kinds, agriculture, dairying, the trades, etc.

[Salaries State Officers, page 439.]

Map of NEW YORK

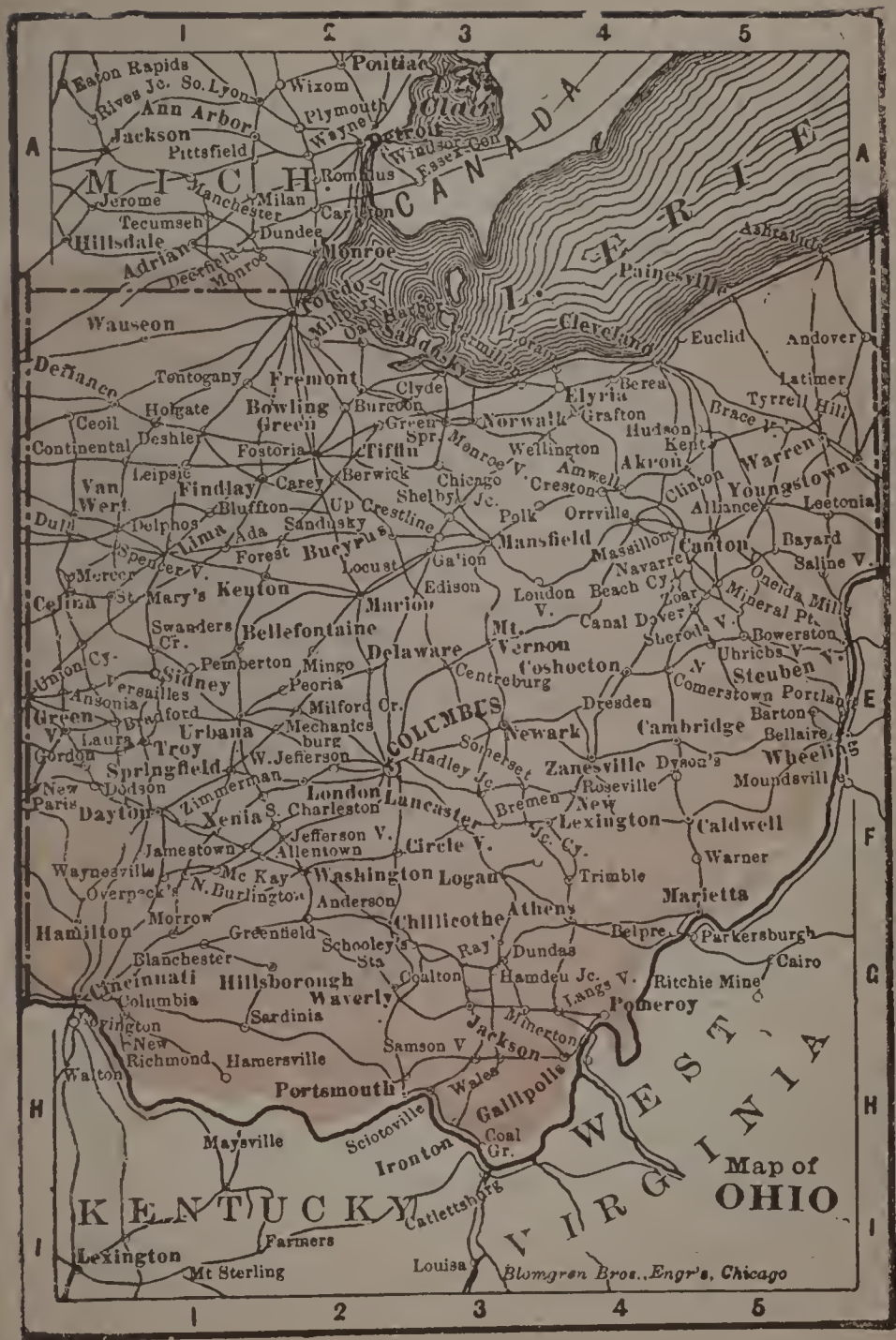


OHIO.

"Buckeye State." Explored by LaSalle 1679. Ohio Territory organized May 7, 1800. Admitted as a state April 30, 1802. Number Union soldiers furnished 313,180. Number counties 88. State and congressional elections second Tuesday in October. Number senators 33, representatives 105, sessions biennial, but "adjourned sessions" practically amount to annual meetings: assemblies first Monday in January. Terms of senators and representatives 2 years each. Number electoral votes 23. Num-congressmen 21. Insane and idiots excluded from voting. Number colleges 35, school age 6-21, school system first-class. Legal interest rate 6 per cent, by contract 8 per cent, usury forfeits excess. Miles of railroad 7,753. Population, census of 1890.—3,672,316. Extreme length E. and W. 225 miles, breadth 200 miles, area 40,760 sq. miles, 25,686,400 acres. Includes Kelley's and Bass islands in Lake Erie. Lake frontage 230 miles, Ohio river frontage 432 miles. Entire state well watered. Valleys extremely productive. Uplands fertile as a rule. — Ohio ranks first in agricultural implements and wool, second in dairy products, petroleum, iron and steel, third in wheat, sheep, coal, malt and distilled liquors, fourth in printing and publishing, salt, miles railway and soap, fifth in milch cows, hogs, horses, hay, tobacco and iron ore. Coal, building stones, iron ore and salt are found in vast quantities. Staple crops, wheat, corn, oats, potatoes, tobacco, buckwheat, etc., vegetables, apples, and the hardier fruits. Cleared land averages \$45, woodland \$40 per acre. Little forest valuable for lumber remains, except in small reserves. Climate as healthful as any in the United States. Warmest on Ohio River. Temperature for state averages, winter 35 deg., summer 77 deg., range of temperature 16 deg. below zero to 101 deg. above. Snowfall considerable. Average rainfall, including snow, 42 inches, decreases to 37 in. at north and increases to 47 inches at south. CHIEF CITIES, census of 1890—Cincinnati, "Queen City of the West," 298,309; Cleveland, 261,546; Columbus, capital, 90,398; Dayton, 58,568; Springfield, 32,135; Toledo, 82,652; Lima, 15,970; Canton 26,327. Chillicothe, Zanesville, Toledo, Sandusky, Cleveland and Cincinnati ports of entry. LEADING INDUSTRIES.—Agriculture, dairying, mining, quarrying, iron making, pork packing, manufacturing.

SALARIES OF STATE OFFICERS.

| | |
|---------------------------------------|---------|
| Governor..... | \$4,000 |
| Secretary of State..... | 3,000 |
| Treasurer..... | 3,000 |
| Auditor..... | 3,000 |
| Attorney General..... | 2,000 |
| School Commissioner..... | 2,000 |
| Superintendent of Ins. Department.... | 1,800 |
| Railroad Commissioner..... | 2,000 |
| Secretary Board of Agriculture..... | 1,800 |



OREGON.

Name means "Wild Thyme." Oregon territory organized August, 1848. Indian troubles, 1844, '47 and '54. Oregon admitted as a state 1859. Number counties 25, miles railroad 1,165. State officers elected quadrennially, and legislature every two years; number of senators 30, representatives 60, sessions of legislature biennial in odd-numbered years, meeting first Monday in Jan., holds 40 days, term of senators 4 years, representatives 2 years. Number electoral votes 3, congressmen 1. United States army, idiots, insane, convicts and Chinese not voting. Number of colleges 7, school age 4-20, school system good. Legal interest rate 8 per cent, by contract 10 per cent, usury forfeits principal and interest.

Population—Census 1890, 313,767. Miles of railroad in 1890, 1,414.

Average length E. and W. 362 miles, average width 260 miles, area 94,560 sq. miles, 60,518,400 acres. Two-thirds entire state mountainous, with wide rich valleys. Columbia river 1,300 miles long, navigable 175 miles, full of cascades and runs through entrancing scenery. Soil generally superior. Wheat the best crop, superior in yield and quality; other crops do well, as do also fruits and vegetables, etc. Extremely favorable to cattle and sheep. Rich in minerals, gold in Jackson, Josephine, Baker and Grant counties, copper in Josephine, Douglas and Jackson, iron ore throughout the state, coal along coast range. Timber resources enormous, and but little touched. Salmon fisheries among best in world. Improved land averages \$17.50, unimproved \$4. Area arable two-fifths state, forest one-sixth state.

Climate—In western Oregon moist, equable, rainfall 59 inches. In eastern Oregon dry. Both pleasant and healthful, though subject to occasional extremes at east. Crops in east do not suffer, however, from drouth. At west snow and ice unknown, except on peaks, where it is perpetual. Frosts on high lands. Average temperature summer 65 deg., winter 45 d.

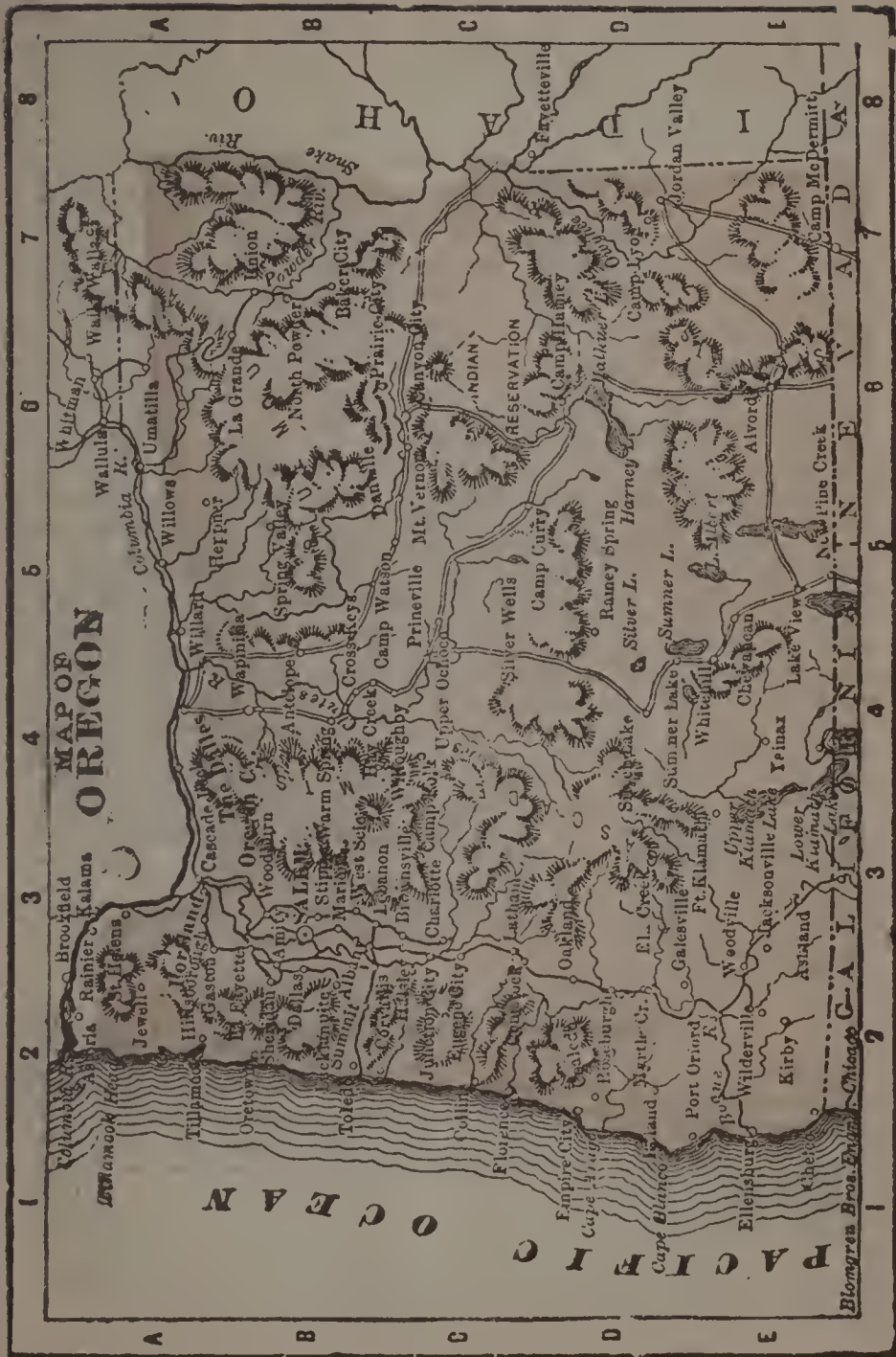
Chief Cities—Census of 1890: Portland, Astoria and Coos Bay parts of entry, Rosenburgh, Portland, 47,294; Salem, capital, 4,515; East Portland, 10,481; Astoria, 7,071; Eugene, 3,958.

Leading Industries—Agriculture, grazing, mining, fishing, lumbering, fruit growing, canning, etc.

Salaries of State Officers.

| | |
|---|---------|
| Governor..... | \$1,500 |
| Secretary of State, Auditor and Comptroller..... | 1,500 |
| Treasurer..... | 800 |
| Superintendent of Public Instruction..... | 1,500 |
| State Librarian..... | 500 |
| Chief Justice.... | 2,000 |
| Two Associate Justices..... | 2,000 |
| Senators and Representatives... \$3 a day and 15 cents per mile | |
| District Judge..... | 3,500 |

MAP OF OREGON



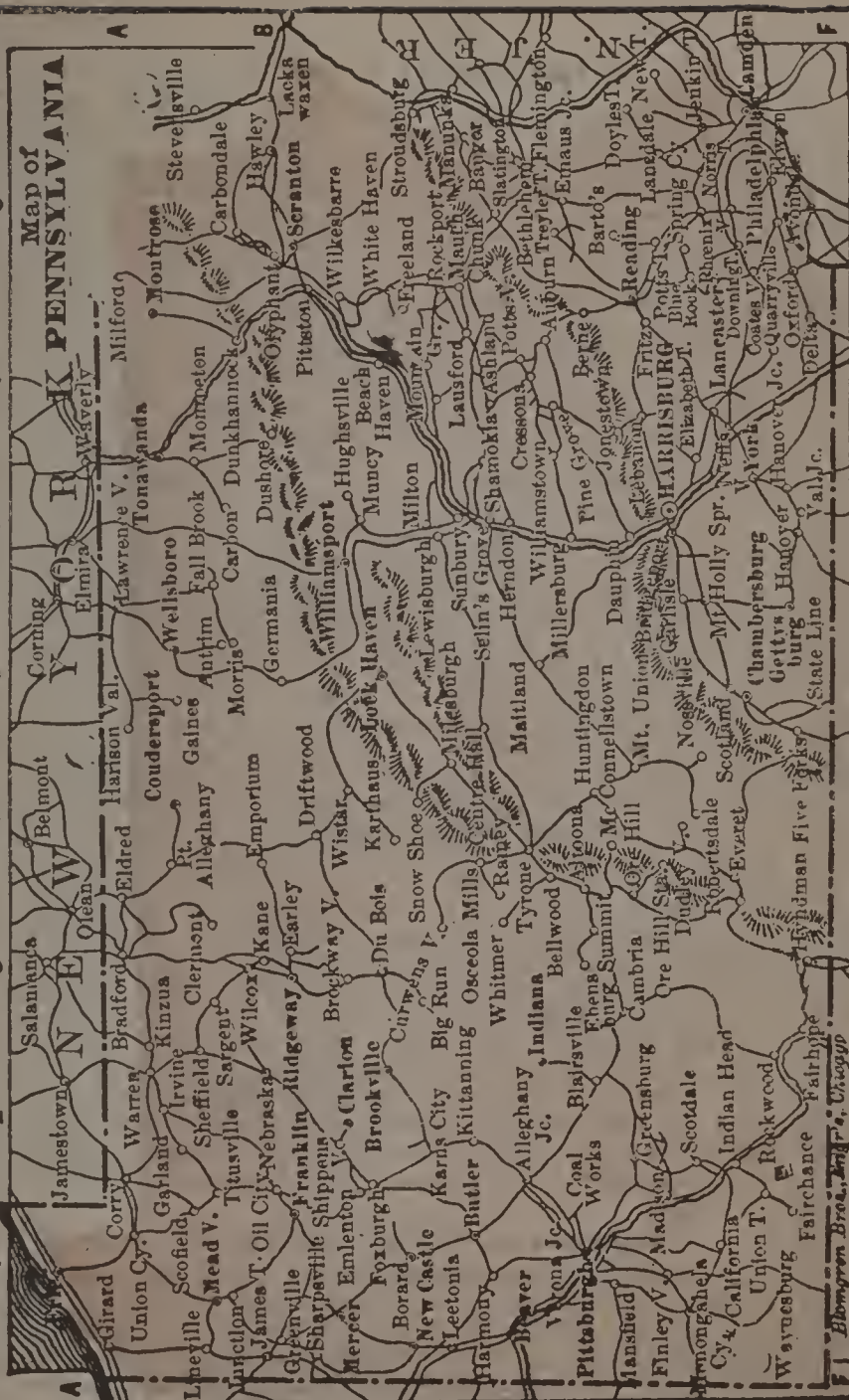
PENNSYLVANIA.

One of the thirteen original states, named for Wm. Penn, the "Keystone State." State invaded three times by confederates, 1862, 1863, when battle of Gettysburg was fought, and 1864, when Chambersburg was destroyed. Union soldiers furnished, 337,930. Number counties 67, miles railroad, 8,422. State elections annual, same date as presidential. Number senators 50, representatives 201, sessions biennial, meeting first Tuesday in Jan., hold 150 days, term of senators 4 years, representatives 2 years, number electoral votes 30, congressmen 28. Non-taxpayers and bribers excluded from voting. Number colleges 26, school age, 6-21, school system good. Legal interest 6 percent. Usury forfeits excess of interest. **POPULATION.**—Census of 1890, 5,258,014. **TOPOGRAPHY, AREA, SOIL, PRODUCTS, ETC.**—Length east and west 300 miles, width 176 miles, area 44,985 sq. miles, 28,790,400 acres. Surface very diverse. Level at the southeast, hilly and mountainous toward the center, and rolling and broken at the west and southwest. Soil varies from barren hills to sections of great fertility. Many superb farms. Cleared land averages \$45, woodland \$30 per acre. Much good timber remains. Farms average 100 acres. Oil, coal (anthracite at east, bituminous at west), iron, copper, kaolin, building stones, salt abound. Rye, corn, wheat, buckwheat, potatoes, vegetables, hay, oats, tobacco are staple crops. Dairying and stock flourish. Climate in mountains severe in winter, with much snow, summers pleasant. Summers hot on the Delaware reaching 100 deg. Summers long in Susquehanna valley. West of mountains summers hot and of moderate length, winters cold. Average winter temperature 34 deg., summer 74 deg., rainfall including snow averages 42 inches. Climate healthy. **CHIEF CITIES.**—Census of 1890, Philadelphia contains mint and navy yard, 1,046,252; Pittsburg, extensive manufacturing city, 238,473; Harrisburg, capital, 40,164; Alleghany, 104,967; Erie, 39,699; Scranton, 83,450; Lancaster, 32,090. Philadelphia, Pittsburg and Erie are ports of entry. **INDUSTRIES.**—Pennsylvania is the great iron oil and coal state. The other industries include agriculture and kindred pursuits, lumbering, manufacture of paper, woollens, liquors, implements, machinery, etc.

Salaries of State Officers.

| | |
|--|----------|
| Governor..... | \$10,000 |
| Lieutenant Governor..... | 3,000 |
| Secretary of State..... | 4,000 |
| Treasurer..... | 5,000 |
| Auditor General..... | 3,000 |
| Attorney General..... | 3,500 |
| Chief Justice..... | 8,500 |
| Six Associate Justices..... | 8,000 |
| Senators and Representatives, \$1,000 for 100 days; \$10 per day; mileage 5 cents. | |

SYLVANIA



RHODE ISLAND.

One of the 13 original states. Called "Little Rhody." First settled at Providence, 1636, by Roger Williams. Island of Acquidneck (Rhode Island) bought from Indians, 1638, and Newport and Portsmouth founded. Lands of Narragansett Indians acquired by purchase, 1709. R. I. seamen distinguish themselves in the Anglo-French wars, 1750 to 1763, and in the Revolution. Union soldiers furnished, 23,236. Number counties, 5. Miles railroad, 212. State elections first Wednesday in April. Elects 72 representatives, 34 senators, 3 congressmen and 4 presidential electors. Legislature meets annually on last Tuesday in May, at Newport, and holds adjourned sessions annually at Providence. Terms of senators and representatives one year. Persons without property to the value of \$134 excluded from voting. Brown's University at Providence founded 1764. Common school system excellent. School age 5-15. Legal interest rate 6 per cent, by contract any rate. Population, census of 1890, 345,506. Area 1,088 sq. miles, or 696,320 acres. Length N. and S. 46 miles, width 40 miles. Narragansett bay divides the state unequally, the western and larger part extending N. from the ocean some 27 miles. The bay is 3 to 12 miles wide, and contains several islands, of which Acquidneck, Canonicut and Prudence are largest. Block Island, at the western entrance of the bay, also belongs to this state. Surface of state broken and hilly. Small rivers unfit for navigation are numerous, and afford valuable water powers. Chief rivers: Pawtucket and Pawtuxet, entering Narragansett Bay, and Pawcatuck, falling into Long Island Sound. The state contains numerous small lakes, some of great beauty. Scenery varied and pretty. Soil middling quality. Hay best crop. Potatoes, corn and oats are the next most important products. No forests. Dairying profitable. Land high-priced. No minerals mined. Climate, owing to nearness to sea, moderate. Average temperature—winter 24 to 42 deg., summer 44 to 74 deg. Rainfall 43 inches. Snow lies 60 to 100 days. Health good. **CHIEF INDUSTRIES.**—Manufacture of fabrics of cotton, flax, linen, wool, boots and shoes, rubber goods, metals, jewelry, etc., agriculture, dairying. Rhode Island, in proportion to size, is the largest manufacturing state in Union. **PRINCIPAL CITIES.**—Census of 1890.—Providence, capital and seaport, 132,043. Newport, capital, seaport finest in the world, and great pleasure resort, 19,449. Bristol, seaport, 5,475. Warren, seaport. Pawtucket, 27,502. Woonsocket, 20,759. Westerly, 6,333.

Salaries of State Officers.

Governor, \$1,000; Lieutenant-Governor, \$500; Secretary of State, \$2,500; General Treasurer, \$2,500; State Auditor, Insurance Commissioner, \$2,500; Railroad Commissioner, \$500; Attorney General, \$2,500; Adjutant General, \$600; Commissioner Public Schools, \$2,500; Chief Justice, \$4,500; Four Associate Justices, \$4,000; Senators and Representatives, \$1 per day, mileage 8 cents; District Judge, \$3,500; Appraiser of Customs, \$3,000.



TEXAS.

"Lone Star State." Settled first by French under LaSalle 1685, was a part of Old Mexico. Independence declared Dec. 20, 1835. Houston inaugurated as president Oct. 1836. Independence of the republic recognized by United States March, 1837, by European powers 1839 and '40. Continued wars with Mexico, embarrassed finances. Proposition for union with United States 1845, and admitted as a state Dec. 29. State paid \$10,000,000 by United States for all lands outside present limits 1850. Seceded Feb. 1861. Houston, who refused to secede, deposed. Military operations small. Last battle of the war near Rio Grande May 13, 1865. Re-entered Union 1870. Number counties 228, miles of railroad 8,498. All elections Tuesday after first Monday in Nov., number senators 31, representatives 106, sessions of legislature biennial in odd-numbered years, meeting second Tuesday in Jan., holds 60 days, term of senators 4 years, of representatives 2 years. Number electoral votes 13, congressmen 11. United States army, lunatics, idiots, paupers and convicts excluded from voting. Number colleges 10, school age 8-14. School endowment enormous, includes 23,470,377 acres yet unsold. Legal interest 8 per cent, by contract 12 per cent, usury forfeits entire interest. POPULATION, census of 1890—2,235,523. TOPOGRAPHY, AREA, SOIL, PRODUCTS, ETC.—Extreme length E. and W. 830 miles, extreme width 750 miles, area 167,865,600 acres, largest of the states and territories. Coast line 412 miles, Galveston bay largest, has 13 feet of water 35 miles inland. Rio Grande (navigable 440 miles). Lands extremely fertile, except in the N. W., where water is scarce. Lands on Rio Grande and at south require irrigation for good results, although crops will grow to some extent without. Entire state covered with rich grasses, affording pasture the year round. All cereals, root crops, vegetables, fruit and stocks flourish. Cotton best crop. Other staples, sugar, molasses, sweet potatoes, corn, wheat, grapes and fruits. Dairying extensive. Cattle, sheep, goat and hog raising on mammoth scale. Cotton picking July to Dec., corn planting middle of Feb., grain harvest May, corn harvest July. Ranks first in cattle and cotton, second in sugar, sheep, mules and horses. Coal area 6,000 sq. miles, quality good. Iron ore and salt deposits extensive. Other minerals found but extent unknown. Improved land averages \$8, and unimproved \$3 to \$4 per acre. Uncultivated and timber land seven-eighths of area, timber area one-fourth. CLIMATE varies, temperate at North, semi-tropical at south. Health everywhere most excellent. Thermometer ranges from 35 to 98 deg., but seldom rises to the latter temperature. At Austin averages winter 56 deg., summer 90 deg. Rainfall averages at Austin 35 inches, increases on coast and to the south, decreases to 13 inches in N. W. San Antonio, 38,681; Dallas, 38,140; Galveston, 29,118; Fort Worth, 20,725.

[Salaries State Officers, page 439.]



MAP OF TEXAS

Springer Ranch
Ft. Elliot
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TER.

UTAH.

Settled 1848 at Salt Lake by Mormons from Illinois, March, 1849, state of "Deseret" organized. Congress refused to receive constitution adopted. Utah territory organized Sept., 1850. Trouble with government till 1858. Federal officers driven from territory 1856. Number counties 24, miles railroad 1,211. Territorial elections annual, first Monday in August. Number senators 12, representatives 24, sessions of legislature biennial, in odd-numbered years, meeting second Monday in Jan., holds 60 days. Terms of senators and representatives 2 years each. School system fair, school age 6-18 years, number colleges 1. Legal interest 10 per cent, by contract any rate.

Population, census of 1890, 207,905.

Average length 350 miles, width 260 miles, area 82,190 miles, 52,601,600 acres. Surface rugged and broken, with some rich valleys. Traversed by Wahsatch, Uintah, Roan, Little, Sierra Lasal, Sierra Abajo, San Juan, Sierra Panoches and Tushar mountains. Southeast portion elevated plateaux, western portion disconnected ridges. Great Salt Lake is 130 sq. miles in area. In N. W. a large area of desert land. Soil in valleys very productive. Yield fine crops of cereals and vegetables. Wheat best crop. Fruits successful. Grazing important interest. Dairying profitable and interest is growing rapidly. Forests sufficient for home purposes. Gold, copper and silver in Wahsatch mountains. Silver predominates. Coal in valley of Weber river. Salt found in large deposits and the lake supply inexhaustible. Territory ranks third in silver.

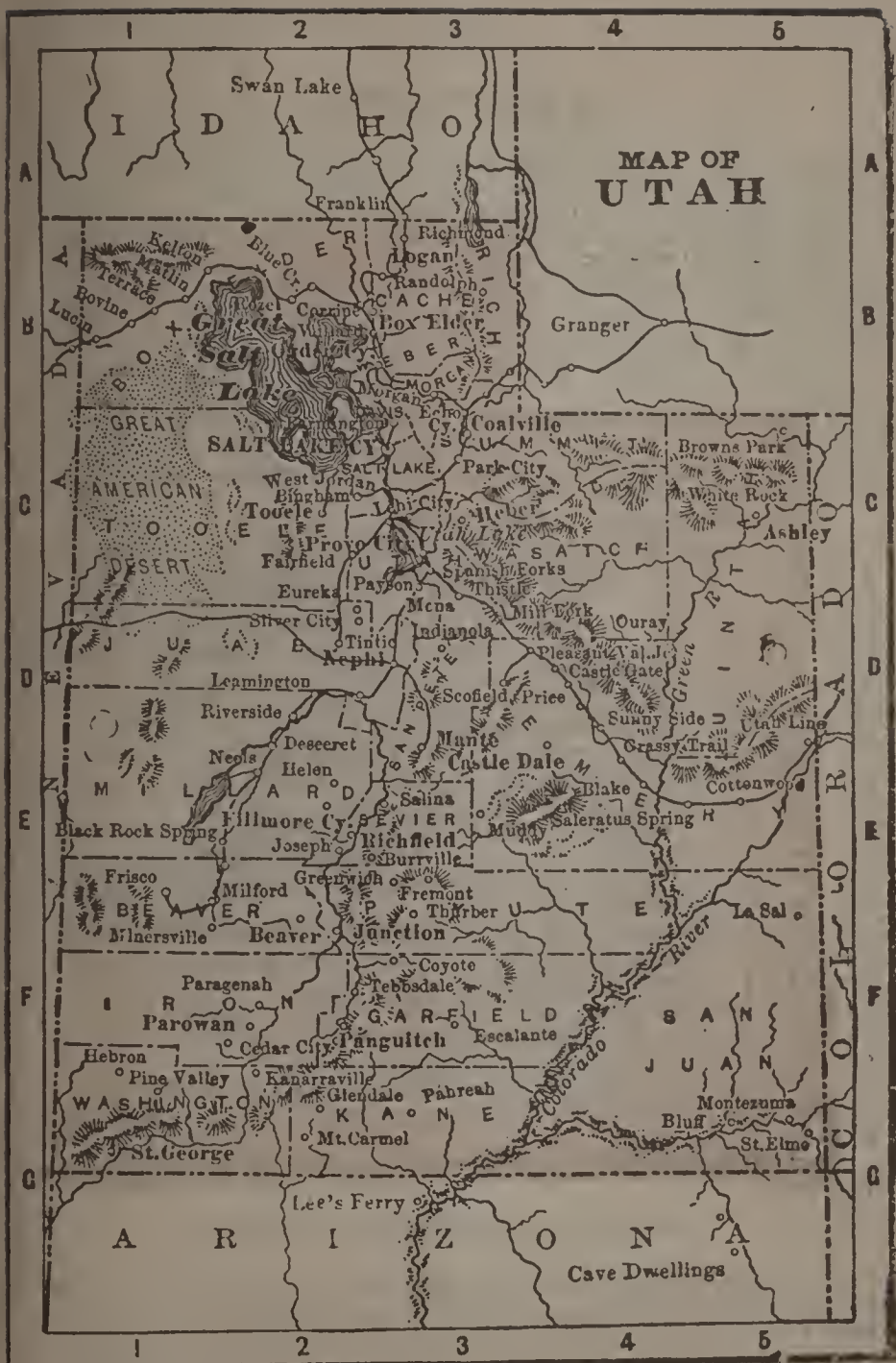
Climate mild and healthy. Warmer W. of Wahsatch mountains. Summers dry and hot in S. W. Rainfall averages 16 inches at S. and 17 at N., chiefly in Oct. and April. Spring opens in April. Cold weather begins late in Nov. In mountains winters severe and snows heavy. Temperature at Salt Lake averages, winter 35 deg., summer 75 deg.

Chief cities—Census of 1890: Salt Lake City, capital, 44,771; Ogden, 18,269; Provo City, 5,153; Logan, 4,624.

Leading Industries—Mining, stock raising and agriculture.

SALARIES OF TERRITORIAL OFFICERS.

| | |
|-----------------------------------|------------------------------|
| Governor..... | \$2,600 |
| Secretary..... | 1,800 |
| Treasurer..... | 600 |
| Auditor..... | 1,500 |
| Superintendent of Public Ins..... | 1,500 |
| Librarian..... | 250 |
| Chief Justice..... | 3,000 |
| Two Associate Justices..... | 3,000 |
| Senators and Representatives..... | \$4 a day, mileage 20 cents. |



WASHINGTON.

Named for George Washington. First settlement 1845, preceded, however, by Hudson Bay Co.'s trading posts. Organized as territory 1853, and admitted to the Union Nov. 11, 1889. First legislature assembled at Olympia February, 1854. Indian wars 1855 and 1858. Gold discovered 1855. Island San Juan in dispute between United States and England 1859. Rights of the Hudson Bay and Puget Sound Co.'s purchased. Number counties 33. Miles railroad 1,706. All elections Tuesday after first Monday in Nov. Number senators 35, representatives 70, sessions of legislature biennial in odd-numbered years, meeting first Monday in October. Terms of senators and representatives 2 years each. Number colleges 2, school age 4-21 years, school endowment reserved large. Legal interest 10 per cent., by contract any rate.

Population, census of 1890, 349,390.

Topography, Area, Soil, Products, Etc.—Extreme length E. and W. 341 miles, width 242 miles, area 66,880 square miles, 42,803,000 acres. Coast line 200 miles. Columbia river navigable 175 miles. Excellent harbors in Puget Sound, Admiralty Inlet and Hood's canal. Scenery, especially on Columbia, grand. Columbia river current overcomes tide at the mouth, and water in the bar drinkable. Cereals flourish but corn not successful. Wheat, oats, hops, fruit of temperate climates, except peaches, are staple. Grazing region entire section east of Cascades, covered with inexhaustible supply of bunch grass. Stock raising and dairying growing industries. Lumber resources unsurpassed. Coal on Bellingham bay and at Seattle, area of coal-bearing strata 20,000 sq. miles. Gold-bearing quartz and silver lodes in Cascade and Coast ranges. Copper, cinnabar, lead and other minerals are found.

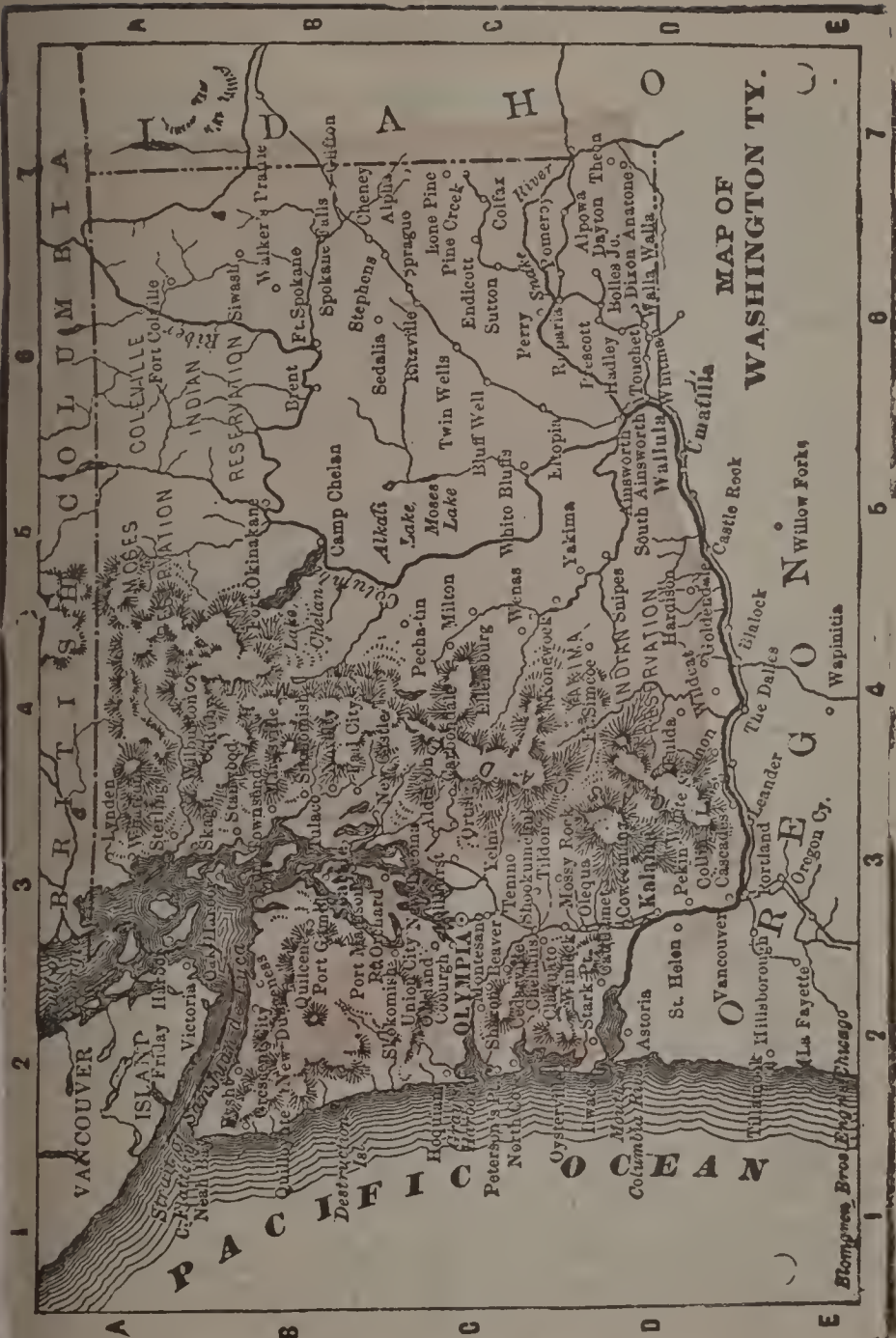
Climate—On coast dry season April to November. rest of year rainy. Rainfall averages at north 96 inches, for entire section 54 inches. Winters mild, little snow or ice. Summers cool with sea breezes. Temperature averages winter 39 deg., summer 61 deg., ranges 30 deg. to 90 deg. Eastern section dry, rainfall 10 inches.

Chief Cities—Census of 1890: Olympia, capital, 4,696; Walla Walla, 7,239; Seattle, 43,914; Tacoma, 35,858; Spokane Falls, 22,626.

Leading Industries—Agriculture, lumbering, grazing, mining, etc.

SALARIES OF TERRITORIAL OFFICERS.

Governor \$2,600, Secretary \$1,800, Treasurer \$1,200, Auditor \$1,200, Superintendent of Public Instruction \$1,000, Librarian \$400, Chief Justice \$3,000, three Associate Justices \$3,000, Senators and Representatives \$4 a day and 20 cents mileage. Surveyor General \$2,500, Chief Clerk \$1,800, Chief Draftsman \$1,700.



MAP OF
WASHINGTON TY.

Blomgren Bros. Eng. & Chicgo

WISCONSIN.

"Badger State." Settled first by French at Green Bay, 1669. Formed part of northwest territory. Included in Indiana territory, 1800. Became part of Michigan territory, 1805. Wisconsin territory organized 1836. Present boundaries fixed 1838. Madison made capital 1838. Admitted as state May 1848. Seventeenth state to join Union. Number Union soldiers furnished 91,327. Number counties 66. Miles railroad 5,478. All elections Tuesday after first Monday in Nov. Number senators 33, representatives 100, sessions biennial in odd-numbered years, meeting second Wednesday in Jan., term of senators 4 years, of representatives 2 years. Number electoral votes 11, number congressmen 9; insane, idiots, convicts, bribers, betters and duellists excluded from voting. Number colleges 7, number public schools 6,588, school age 4-20 years. Legal interest 7 per cent, by contract 10 per cent, usury forfeits entire interest.

Population, census of 1890, 1,686,880.

Topography, Area, Soil, Products, Etc.—Extreme length N. and S. 298 miles, width 260 miles, area 54,450 sq. miles, 34,848,000 acres. Besides the great lakes Michigan and Superior the state contains Green Bay, Winnebago, Geneva, Devil's lake and innumerable other lakes in the central and northern sections of the state, of unsurpassed beauty, making the state a favorite place of summer resort. Much of state prairie, but enormous stretches of magnificent pine and hardwood timbers remain untouched. Soil excellent and adapted to farming, dairying and stock raising. Fruits grow and berries are a fine crop. Cranberries largely raised. Wheat the best crop, flax, buckwheat, hay, corn, oats, staples. Extensive lead mines in Grant, Lafayette and Iowa counties, native copper in the north, in Crawford and Iowa counties. Iron ores in Dodge, Sauk, Jackson and Ashland counties. Ranks second in hops, third in barley and potatoes, fourth in rye and buckwheat, fifth in oats and agricultural implements. Improved land averages \$18 and unimproved \$10 per acre. Much government and railroad land yet untaken.

Climate—Temperature averages winter 20 deg., summer 71 deg., ranges from 32 deg. below zero to 95 deg. Rainfall 31 inches, including snow. Snows heavy, especially at north; spring late, summers short, falls pleasant. Milwaukee river frozen over an average of 105 days in year.

Chief Cities—Census of 1890: Milwaukee, port of entry, great pork-packing and beer-brewing center, grain and wheat market, 204,150; Madison capital, 13,392; Eau Claire, 17,438; Fond du Lac, 11,942; Oshkosh, 22,752; La Crosse, 25,053; Racine, 21,022; Superior, 13,000; Sheboygan, 16,341; Janesville, 10,631.

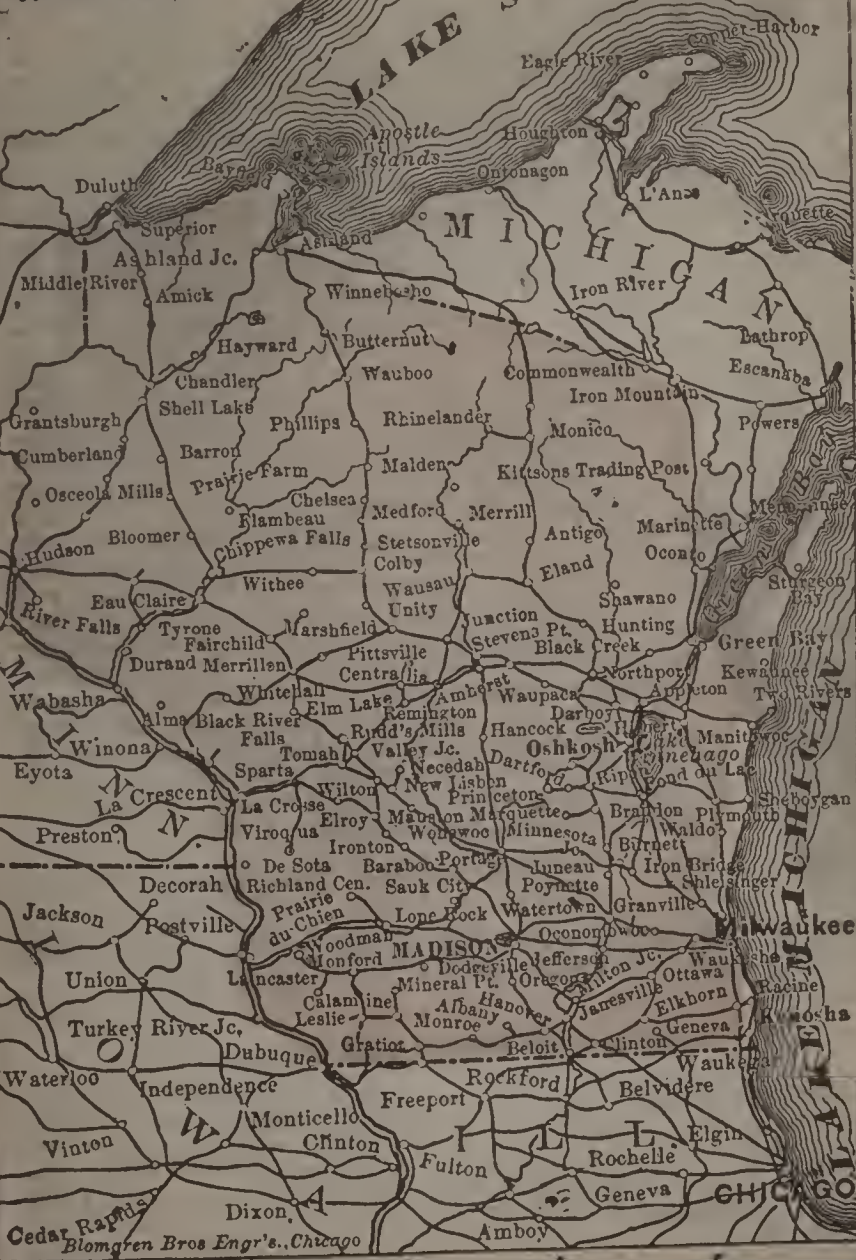
Leading Industries—Lumbering, farming, mining, manufacturing, brewing, pork packing, dairying, etc.

[For salaries of state officers see page 439.]

MAP OF WISCONSIN

LAKE SUPERIOR

MICHIGAN



Cedar Rapids
Blomgren Bros Engr's., Chicago

WYOMING.

First settlement, Ft. Laramie, 1867. Organized as a territory in 1868, and admitted to the Union July 8, 1890. Number counties all elections Tuesday after first Monday in Nov., number senators, 12, representatives 24, sessions biennial, in even-numbered years, meeting second Tuesday in Jan., hold 60 days, terms of senators and representatives 2 years each. Good school system, school age 7-21. Legal interest rate 12 per cent., by contract any rate. Miles of railroad 950.

POPULATION.—Census of 1890, 60,705.

Length 350 miles, width 275 miles, area 97,890 sq. miles, 62,438,000 acres. Surface traversed by Rocky Mountains, forming the continental divide, and is high and mountainous, varying in elevation from 4,800 to 12,000 feet. At the N. W. is the Yellowstone National Park, 3,600 sq. miles in area, and one of the greatest natural wonders of the continent. It varies from 6,000 to over 12,000 feet in elevation, and its scenery is one vast panorama. Along the streams and in the valleys are tracts of arable lands which may be made to produce prolifically with irrigation. Mountains, covered with forests of considerable extent, contain precious and base metals in great deposits. Soil, where water can be had, is good; soil chiefly suited to grazing. Half the territory grazing land. Wheat, rye, oats and barley flourish, frost too frequent for corn. Water plentiful, game and fur-bearing animals numerous, iron ore abundant, mainly red hematite. Copper, lead, plumbago and petroleum found, gold in the Sweetwater country and near Laramie City, valuable deposits of soda in valley of the Sweetwater. Coal abundant and of good quality at Evanston, Carbon, Rock Springs and other points. Climate cold, severe in mountains, milder in valleys. Healthful, air pure, dry and bracing. Rainfall, 15 inches. Temperature averages, summer 66 deg., winter 18 deg., ranges from 31 deg. below to 80 deg. above. July warmest month, January coldest, latter averages 10 deg.

CHIEF CITIES.—Cheyenne (capital), pop. 11,693. Laramie City, pop. 6,395.

CHIEF INDUSTRIES.—Grazing, mining and agriculture, but little is done in manufacturing.

Salaries of Territorial Officers.

| | |
|------------------------------------|--------------------------------|
| Governor..... | \$2,600 |
| Secretary..... | 1,800 |
| Treasurer..... | \$800 and com. |
| Auditor..... | 1,000 |
| Superintendent of Public Inst..... | 400 |
| Librarian..... | 400 |
| Chief Justice..... | 3,000 |
| Two Associate Justices..... | 3,000 |
| Senators and Representatives..... | \$4 a day and 20 cents mileage |

MAP OF WYOMING



Blomgren Bros. Engrs. Chicago

DISTRICT OF COLUMBIA.

Named for Columbus. Fixed as seat of U. S. government 1790 by act of Congress. Formed out of Washington Co., Md. (64 sq. miles). Government removed to District 1800. Captured by British 1814, and capitol, executive mansion and congressional library burned. Governed by Congress till 1871, when a legislative body of 33 (11 appointed by the president and 22 elected) was created. Executive officers still appointed by president. Officers appointed are paid by the United States, those elected by the District. Citizens of District have no vote for national officers. Schools superior. Legal interest 6 per cent, by contract 10, more forfeits entire interest. Population, 1890, 230,392. Miles railroad, 20.66. Surface made up of flats and hills. Similar in all features and products to Southern Maryland. Cities.—Washington (capital U. S.), pop. 229,796, Georgetown, pop. 12,578.

THE WHITE HOUSE AT WASHINGTON, D. C.

The White House, at Washington, D. C. is 170 feet long by 86 feet wide. The largest apartment, known as the east room, is 80 by 40 feet in dimension and 22 feet high. The adjoining blue room, finished in blue and gold, is devoted to receptions, diplomatic and social. The green and red rooms, so called from their finishing, are each 30 by 20 feet. The rooms on the second floor are occupied by the executive office and the apartments of the President's family.

THE WASHINGTON MONUMENT.

The corner-stone was laid by President Polk, July 4th. 1848, and December 6, 1884, the cap-stone was set in position. The foundations are 126½ feet square and 36 feet 8 inches deep. The base of the monument is 55 feet 1½ inches square, and the walls 15 feet ¼ inch thick. At the 500 foot mark, where the pyramidal top begins, the shaft is 34 feet 5½ inches square and the walls are 18 inches thick. The monument is made of blocks of marble two feet thick, and it is said there are over 18,000 of them. The height above the ground is 555 feet. The pyramidal top terminates in an aluminum tip, which is 9 inches high and weighs 100 ounces. The mean pressure of the monument is 5 tons per square foot, and the total weight, foundation and all, is nearly 81,000 tons. The door at the base, facing the capitol, is 8 feet wide and 16 feet high, and enters a room 25 feet square. An immense iron framework supports the machinery of the elevator, which is hoisted with steel wire ropes two inches thick. At one side begin the stairs, of which there are fifty flights, containing eighteen steps each. Five hundred and twenty feet from the base there are eight windows, 18x24 inches, two on each face. The area at the base of the pyramidal top is 1,187¼ feet, space enough for a six-room house, each room to be 12x16 feet. The Cologne Cathedral is 525 feet high; the pyramid of Cheops, 486; Strasburg Cathedral, 474; St. Peter's, at Rome, 448; the capitol at Washington, 306, and Bunker Hill monument, 221 feet. The Washington monument is the highest monument in the world; total cost, \$1,500,000.

GREAT LAKE FISHERIES.

Statistics included in the Census for 1890, show in detail the value and extent of the commercial fisheries of the great lakes, for 1890. These returns represent more than 3,500 miles of shore line, and show the fisheries to be the most extensive in the world. A careful estimate, based on the known production of 1880, 1885 and 1889, shows that in the decade terminating with the census of 1890, over 1,000,000,000 pounds of food fish were taken, which yielded the fishermen over \$25,000,000.

In 1889, 6,896 persons were engaged in the capture of fish on the great lakes. These employed 107 steamers, valued at \$357,650, and 3,876 other vessels and boats, worth \$325,438. The apparatus used consisted of 3,831 pound nets and trap nets, the value of which was \$823,919; gill nets to the value of \$408,797; 176 seines, worth \$15,089, and other apparatus of capture amounting in value to \$97,252. The capital invested in shore property directly connected with the fisheries was \$804,814. These items give as the total investment in fishing property, \$2,832,959.

The quantity of fish taken was 117,085,568 pounds, the value of which at first hands was \$2,615,784. Lake trout, one of the most important and highly esteemed fishes of the great lakes, increased 4,397,301 pounds, or 64.62 per cent, since 1880. It is most abundant in Lake Michigan, where nearly one-half the entire catch of 11,201,631 pounds was obtained, and where the increase since 1880 has been 2,920,908 pounds, or 109.83 per cent. Lake Superior ranks next to Lake Michigan in the abundance of trout in its waters, and also exhibits a substantial increase, amounting to 1,901,974 pounds, or 129.85 per cent.

Whitefish is perhaps the most popular species occurring in the great lakes, and, next to herring, is the most abundant and profitable. The returns show an aggregate yield in 1889 of 15,326,438 pounds, a decrease of 6,137,412 pounds, or 28.59 per cent as compared with 1880. This decrease is noticeable in all the lakes but Superior, where there has been a substantial gain, amounting to 1,641,558 pounds, or 72.73 per cent. The most pronounced decrease has been in Lake Ontario, where the decline in the catch of whitefish has kept pace with that of other species. The yield of 1,064,000 pounds in 1880 dwindled to only 23,383 pounds in 1889, the decrease being 97.80 per cent. The least decrease is exhibited by Lake Erie, where the catch in 1880 is almost duplicated in 1889, the decrease being only 10,028 pounds, or 0.30 per cent. The most serious decline is noticeable in Lake Michigan, in which considerably more than half the yield in 1880 was obtained, and where

the loss in 1889, 6,506.429 pounds, was greater than the output in the same year, and amounted to 54.08 per cent.

Fisheries on Lake Michigan are carried on in two counties in the State of Illinois bordering upon that lake, two counties similarly situated in Indiana, nineteen counties in Michigan, and eleven counties in Wisconsin.

In Cook County, Ill., the apparatus used consists principally of hooks and lines, gill nets and pond nets. The catch includes buffalo fish, carp, eels, herring, lawyers, muskallunge, perch, pickerel, sheepshead, sturgeon, suckers, trout, wall-eyed pike, and whitefish, which is all sold in Chicago, either fresh or smoked. There has been a great falling off in the number of trout and whitefish since 1880. Fishermen are principally Americans, Norwegians, Swedes and Germans. In Lake County, Ill., gill nets, trap nets, pound nets and seines are used. The catch covers perch and whitefish, and is sold at Waukegan and Chicago. A decrease in whitefish has been noticed since 1885.

In Manitowoc County, some sixteen varieties of food fish are caught in pound nets and gill nets, principally by American and Canadian fishermen. Whitefish are said to have disappeared from Milwaukee County about five years ago. About fifteen varieties of food fish are still caught there, chiefly by Americans, Germans and Danes. The catch is shipped almost entirely to Chicago, but little being sold in Milwaukee.

The total catch amounted to 26,006,944 pounds, worth \$788,536, or an average of three cents per pound. The herring weighed 9,568,587 pounds, and were worth \$190,359, or 2 cents per pound; the trout represented 5,580,358 pounds, worth \$249,255 in the aggregate, or an average of 4.5 cents per pound; the whitefish caught aggregated 5,523,971 pounds, valued at \$246,493, or 4.5 cents per pound, the same as trout. Bass were worth on the average 5.2 cents per pound; catfish 2 cents, perch 1.7 cents, pike and pickerel 3.7 cents, sturgeon 4.3 cents, suckers 0.6 cent, and other species 7.1 cents per pound.

The Floriculture Industry in the United States was made the subject of investigation by the Census Bureau, with the following results, the statistics applying solely to the business of florists in 1890:

| | |
|-------------------------------------|--------------|
| Number of Establishments..... | 4,359 |
| Square Feet of Glass Covering .. | 38,823,247 |
| Value of Establishments..... | \$38,355,722 |
| Men Employed..... | 16,847 |
| Women Employed..... | 1,958 |
| Product of year—Rose Bushes..... | 49,056,253 |
| “ Hardy Plants and Shrubs | 38,380,872 |
| “ All other plants..... | 152,835,292 |
| Total value of Product..... | \$12,030,477 |
| Cut Flowers in addition, value..... | \$14,175,329 |

LARGEST CITIES OF THE EARTH.

Population According to Latest Census.

| | |
|---------------------------------------|-----------|
| Adrianople, Turkey..... | 140,000 |
| Alexandria, Egypt..... | 227,064 |
| Amsterdam, Holland..... | 417,539 |
| Antwerp, Belgium..... | 215,779 |
| Baltimore, United States..... | 435,151 |
| Barcelona, Spain..... | 272,481 |
| Bangkok, Siam (estimated)..... | 600,000 |
| Benares..... | 222,420 |
| Berlin, Prussia..... | 1,579,944 |
| Belfast, Ireland..... | 255,896 |
| Birmingham, England..... | 454,835 |
| Bombay, India..... | 804,470 |
| Boston, United States..... | 446,507 |
| Bordeaux, France..... | 240,582 |
| Bradford, England..... | 216,938 |
| Breslau, Prussia..... | 335,174 |
| Bristol, England..... | 222,049 |
| Brooklyn, United States..... | 804,377 |
| Brussels, Belgium..... | 469,317 |
| Buda Pesth, Hungary..... | 506,384 |
| Bucharest, Roumania..... | 246,086 |
| Buenos Ayres, Argentine Republic..... | 546,986 |
| Buffalo, United States..... | 254,457 |
| Canton, China..... | 1,600,000 |
| Cairo, Egypt..... | 368,108 |
| Calcutta, India..... | 840,130 |
| Chicago, United States..... | 1,098,576 |
| Cincinnati, United States..... | 296,309 |
| Cleveland, United States..... | 761,546 |
| Cologne..... | 281,273 |
| Constantinople, Turkey..... | 873,565 |
| Copenhagen, Denmark..... | 312,387 |
| Damascus..... | 200,000 |
| Detroit, United States..... | 205,669 |
| Dresden, Saxony..... | 276,086 |
| Dublin, Ireland..... | 353,000 |
| Edinburgh, Scotland..... | 261,970 |
| Foochow, China..... | 630,000 |
| Genoa, Italy..... | 206,485 |
| Glasgow, Scotland..... | 674,095 |
| Hankow, China..... | 775,000 |
| Hamburg, Germany..... | 323,923 |
| Hong Kong..... | 221,141 |
| Hull..... | 200,234 |
| Hyderabad, India..... | 892,730 |
| Kioto, Japan..... | 279,792 |

| | |
|-----------------------------------|-----------|
| Leeds, England..... | 375,449 |
| Leipzig..... | 353,272 |
| Lisbon, Portugal..... | 253,496 |
| Lille, France..... | 188,272 |
| Liverpool, England..... | 604,562 |
| London, England..... | 4,351,738 |
| Lucknow, India..... | 272,590 |
| Lyons, France..... | 401,930 |
| Madras, India..... | 449,950 |
| Madrid, Spain..... | 472,228 |
| Magdeburg..... | 202,325 |
| Manchester, England..... | 506,469 |
| Marseilles, France..... | 376,143 |
| Melbourne, Australia..... | 488,999 |
| Mexico City, Mexico..... | 329,535 |
| Milan, Italy..... | 414,551 |
| Montreal..... | 216,650 |
| Milwaukee, United States..... | 204,105 |
| Moscow, Russia..... | 753,469 |
| Munich, Bavaria..... | 348,317 |
| Naples, Italy..... | 530,872 |
| New Orleans, United States..... | 241,995 |
| New York, United States..... | 1,710,715 |
| Nottingham, England..... | 237,812 |
| Odessa, Russia..... | 270,643 |
| Osaka, Japan..... | 476,271 |
| Palermo, Italy..... | 267,416 |
| Paris, France..... | 2,344,550 |
| Pekin, China (estimated)..... | 500,000 |
| Philadelphia, United States..... | 1,044,895 |
| Prague..... | 304,000 |
| Pittsburg, United States..... | 238,473 |
| Rio de Janeiro, Brazil..... | 357,332 |
| Rome, Italy..... | 423,217 |
| Rotterdam..... | 209,136 |
| Salford, England..... | 208,017 |
| San Francisco, United States..... | 297,990 |
| Santiago, Chili..... | 236,412 |
| Seoul, Corea (estimated)..... | 250,000 |
| Shanghai, China..... | 355,000 |
| Sheffield, England..... | 325,304 |
| St. Louis, United States..... | 460,357 |
| St. Petersburg, Russia..... | 956,226 |
| Stockholm, Sweden..... | 245,317 |
| Sydney, Australia..... | 386,400 |
| Teheran, Persia..... | 210,000 |
| Tientsing, China..... | 950,000 |
| Tokio, Japan..... | 1,389,681 |
| Turin, Italy..... | 320,808 |
| Vienna, Austria..... | 1,364,548 |
| Warsaw, Poland..... | 454,898 |
| Washington, United States..... | 229,796 |



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